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How to generate statistics and influence policy using participatory methods in research: reflections on work in Malawi 1999–2002

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Summary

In Malawi in 1999–2002 we conducted research studies using participatory methods to generate population estimates; estimates of the proportion of people in a population with certain characteristics (e.g. the very food insecure); and estimates of the proportion of people in a population that should be targeted by an intervention. We claim that the statistics generated in these studies are at least as reliable as statistics obtained from traditional methods such as surveys.

A key requirement is to produce results from a representative sample, which can be generalised in order to reach conclusions for the population of interest. This implies working in a larger number of sites than is common for most studies that use participatory methods. However, we argue that the Malawi experience shows that it is possible to organise such studies at a reasonable cost.

Other key requirements are for the study design to incorporate statistical principles; and for PRA tools to be adapted to meet the demands of standardisation and comparability of data produced across sites. We argue that this can be done without undermining participatory approaches, behaviours and methods. If research studies using participatory methods follow this approach, the data generated will be suitable for standard statistical analysis. The statistics produced by such studies should be capable of informing policy at national level. However, there are some concerns about empowerment and ethical issues, which present challenges for the future.

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Abbreviations

ADD	Agricultural Development Division (of the Malawi Ministry of Agriculture)
DFID	Department for International Development (UK)
EFI	Extremely Food Insecure
EPA	Extension Planning Area (of the Malawi Ministry of Agriculture)
FG	Focus Group
FI	Food Insecure
FS	Food Secure
FSS	Food Security Status
GTIS	Ground Truth Investigation Study
NGO	Non-Governmental Organisation
NSO	National Statistical Office of Malawi
PRA	Participatory Rural Appraisal
RDP	Rural Development Project (of the Malawi Ministry of Agriculture)
SPLU	Starter Pack Logistics Unit
SSC	Statistical Services Centre of The University of Reading (UK)
TIP	Targeted Inputs Programme
TIP1	2000–01 TIP
TIP2	2001–02 TIP
TIPLU	TIP Logistics Unit
TS	TIP Status
VTF	Village Task Force

Part 1 Introduction

1.1 The approach

The focus of this paper is an approach that we will refer to as 'research using participatory methods'. The studies on which it is based worked with participants from rural communities, but they were not community-led in the sense of having an agenda determined by the participants and evolving in response to local development needs. The demand for these studies came from the top, from policy-makers and donors funding development. In such cases, where statistics are required, it is common to use surveys-based research methodologies, and for some of the research studies undertaken during the period covered by this paper (1999–2002) we did indeed carry out surveys. However, for answering many of the questions that donors and policy-makers were asking, we argued that surveys were not appropriate. We opted instead for participatory approaches, both because we wanted to give communities a voice and because we wanted to gather information that is too complex to be handled using questionnaires. The challenge for us was to generate reliable statistics from research using participatory methods.

It may be helpful at the outset to compare our 'research using participatory methods' with the action research tradition. In their introduction to the *Handbook of Action Research* (2001), Reason and Bradbury state that, 'action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview. . .' The emphasis is on actions and practical solutions: 'Action research is only possible *with, for* and *by* persons and communities, ideally involving all stakeholders both in the questioning and sensemaking that informs the research, *and* in the action which is its focus'.

Our approach is also designed to lead to actions and practical solutions, but not primarily at the level of the community. Rather, we aim – with the consent and active participation of the community – to influence policy and thereby bring about actions at the higher level 'in the pursuit of worthwhile human purposes'.

The examples presented in the *Handbook of Action Research* (Part 3: Exemplars) involve individuals, organisations or networks of people who are linked by a common goal or interest. This was usually not the case for our work in Malawi. Our experience was of situations where research questions were posed by stakeholders at the policy level, leading to a demand for information gathering across a large number of (usually disparate) communities. It is difficult if not impossible to engage in "action research" in such context, if by action research we mean processes which generate actions by the communities or people involved, working together to achieve an outcome. The main objective of our research is to generate action at a higher level. Nevertheless, if the right measures are put in place, we believe it *is* possible:

(a) to consult communities affected by a policy in order to generate actions by stakeholders at higher levels that will benefit those at the grass-roots;

(b) to observe participatory principles in terms of behaviours, approaches and methods during the process of consultation at grass-roots level[1]; and

(c) to share learning processes and outcomes (including data analysis) which can empower communities and contribute to local development.

In this sense, we attempt to avoid the "extractive" nature of traditional methods of data collection. But these are early days. We still have many lessons to learn.

Another way of seeing it is that the approach attempts to link the least and most powerful in society through a process of learning. This can lead to exciting outcomes if the powerful are genuinely interested in undertaking actions that will have a positive impact on development and poverty reduction. However, the powerful stakeholders *must* seriously commit to acting on the information generated and to doing so in a way which is likely to benefit the least powerful participants. The downside is that if the powerful actors lack such commitment, the appropriate policy decisions ("actions") are unlikely to be taken even if the evidence is produced. Thus, this type of participatory research is more risky than the action research described in the Reason and Bradbury collection.

1.2 Our studies [2]

We coordinated six research studies in Malawi between 1999 and 2002 which generated statistics using participatory methods (see Barahona and Levy 2002). This paper refers in detail to three of them, which generated:

1. population estimates;
2. estimates of the proportion of people in a population with certain characteristics, e.g. the very poor/extremely food insecure, or those benefiting from an intervention;
3. estimates of the proportion of people in a population that should be targeted by an intervention (the "right" level of targeting); and
4. comparisons between places, including variability.

The common aim of the studies was to collect information from smallholder farmers in a way that policy-makers and donors could accept as "representative" of the smallholder farmer population as a whole. They were part of an evaluation of Malawi Government programmes that provided "Starter Packs" of free

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1 Chambers (1994a).

2 In this paper, these studies are referred to as "our studies" because they were designed by ourselves together with the Malawi or UK-Malawi research teams. When referring to a specific study we use the name of the team leader for that study, e.g. Chinsinga (2001), or the year and module reference, e.g. 2000–01 TIP Evaluation Module 4.

agricultural inputs (fertiliser and seed) to smallholder farmers in rural areas.[3] The evaluation was funded by the UK Department for International Development (DFID).

The studies that used participatory methods formed part of a wider programme of research comprising 12 studies, including five nationwide surveys and one set of case studies.[4] The "modular" design of the research programme, in which different types of research complemented each other, was based on our view that the research method should be a function of the type of information that is required.

1.3 What this paper sets out to do

Part 2 of this paper presents three of the Malawi studies based on the 'research using participatory methods' approach and shows how they generated statistics which could help answer questions formulated by policy-makers and donors. In each case, in an attempt to assess their influence on policy, we ask:

- What was the *policy relevance* of the findings?
  and
- What *policy challenges* did they present?

We also present a summary of the methodological lessons that we learnt about using participatory methods to generate statistics that can influence policy.

Part 3 aims to reconcile some of the differences between "quantitative" research (surveys) and "qualitative" research using participatory methods. Survey-based research can generate statistics that are "representative" of a population, and, as such, tends to be seen by policy-makers as more useful than research using participatory methods, which often generates results that are valid at the local level but cannot be generalised in order to reach conclusions for a population of interest.

Our experience in Malawi over the last three years suggests that the dichotomy is a false one. It is possible to apply statistical principles to research using participatory methods and to generate numbers-based analysis that is "representative" of a population. There are major differences between research that uses surveys and research using participatory methods, but these should not be because one approach is representative while the other is a collection of "case studies". By adopting certain statistical principles and making some adaptations to the PRA tools, this difference disappears in most cases.

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[3] 'The 2000–01 and 2001–02 Targeted Inputs Programmes (TIPs) provided rural smallholder households with one Starter Pack containing 0.1 ha-worth of fertiliser, maize seed and legume seed. The TIPs followed on from the Starter Pack campaigns in 1998–99 and 1999–2000. A key objective of these campaigns was to increase household food security amongst rural smallholders in Malawi. The 1998–99 and 1999–2000 Starter Pack campaigns were designed to cover all rural smallholder households, providing 2.86 million packs each year. The 2000–01 TIP (TIP1) was enough for roughly half this number of beneficiaries, while the 2001–02 TIP (TIP2) was further scaled down to 1 million beneficiaries'. Levy and Barahona (2002).

[4] A CD containing the final reports of all the studies and the data collected can be obtained from the DFID offices in Lilongwe or from c.e.barahona@reading.ac.uk

The key difference that remains is the type of information that can be collected. Surveys collect simple pieces of data using questionnaires. Research using participatory methods studies uses discussions to explore deeper matters, often with tailor-made "tools" or "techniques". Even if they generate numbers, these are the result of discussion and exchange of views rather than an on-the-spot reaction to a question.

It is important to recognise that different types of data, fulfilling different objectives, require different approaches to information collection. It is not the intention of the authors of this paper to argue that the type of research using participatory methods developed in Malawi could replace survey work. Rather, we believe that research using participatory methods complements survey work by collecting information that surveys cannot collect efficiently. The reverse is also true. It would be inefficient to try to collect the sort of data that questionnaires capture using participatory methods. In many research exercises, both types of information have a role to play. The challenge is to ensure that policy-makers give equal weight to the findings of research using participatory methods by making it representative of the populations of interest.

Part 4 of this paper discusses some of the issues for which we do not have answers, and which represent challenges for the future. Firstly, if much of the agenda is externally-determined, is this type of research compatible with the principles of "empowerment" that practitioners of participation uphold? And secondly, what are the ethical issues raised by this type of research?

Part 2 The Malawi studies

2.1 Measuring the size of the rural population

In 1999–2000, the first year of our involvement in the evaluation of the Starter Pack programme, we were presented with a controversial question: 'What is the size of the rural population in Malawi?'. Policy-makers and donors were facing difficulties because the 1998 census had found 1.95 million households and 8.5 million people in rural areas, while the process of registration for Starter Pack in 1999 estimated that there were 2.89 million households in rural areas. If multiplied by the average household size found by the census, 2.89 million households would imply a rural population size of 12.6 million (48 per cent higher than the census figure). This was a serious discrepancy. Policy-makers and donors needed to know the size of the population in order to calculate the scale of resources needed for government programmes and aid. More generally, population statistics are used to estimate key data such as GDP per capita, which feed into indices of poverty and development.

At the start of our research, most people felt that the 1998 census was a reliable source and the data from the Starter Pack Logistics Unit (SPLU) – the unit in charge of registering beneficiaries for Starter Pack – lacked credibility. Observers felt that registration for Starter Pack would have encouraged over-registration of households, because more benefits would be received if more households were registered. Moreover, registration for Starter Pack in 1999 took place in the run-up to an election, and with politicians using the pack as part of the election campaign, the initial lists submitted to the SPLU by Ministry of

Agriculture field staff looked set to be wildly exaggerated. The SPLU had to get the ministry's field staff to make strenuous efforts to be realistic when compiling the register (Wingfield Digby 2000).

We set out to discover whether the SPLU data was an overestimate, using a Ground Truth Investigation Study (GTIS). We knew that if we could establish in a sample of villages how many households existed and what was the size of the village population, we would be able to scale up the results to establish the number of households and population size at national level. A team led by M.N.S. Msowoya from Mzuzu Agricultural Development Division (ADD) was commissioned to do a full enumeration (census) of a sample of 60 villages.[5]

When planning how the work would be done at village level, we anticipated two key problems: first, how would we know where the boundaries of each village were, and second, what definition of household should be used? Problems of defining rural vs. urban areas and the different administrative boundaries used by local government and the Ministry of Agriculture were also anticipated when scaling up and comparing with data from the 1998 census and the SPLU (Wingfield Digby 2000).

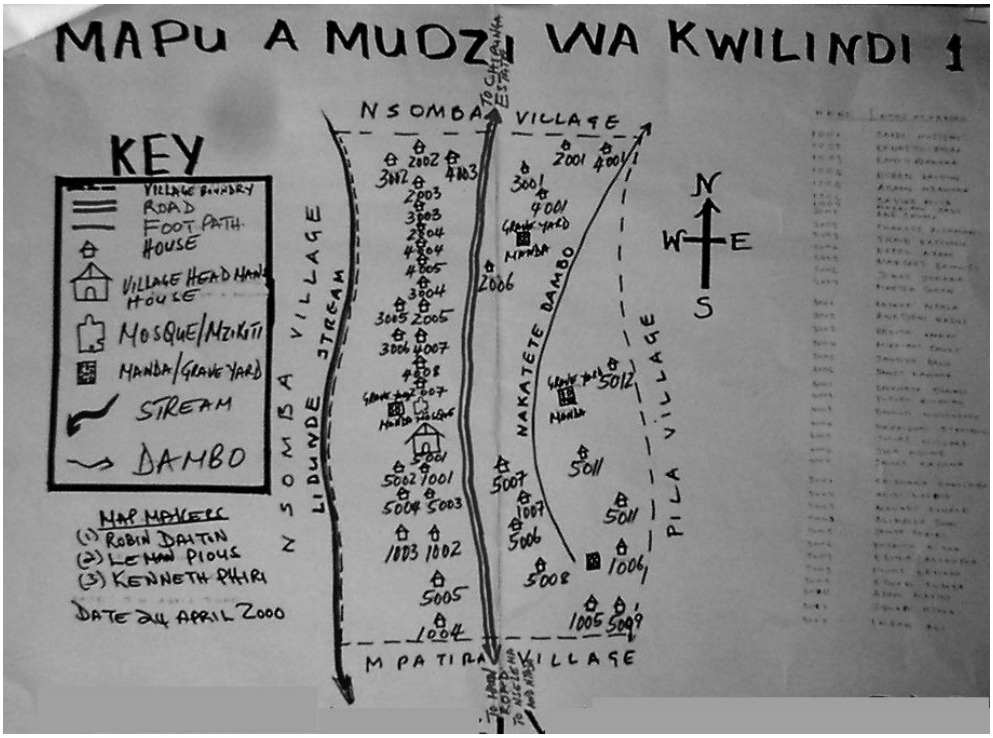
In this paper, our focus is on the problems at village level, as this affected our choice of methodology for carrying out the fieldwork. We needed to know the boundaries of the village and agree – by identifying households in the same way in each site – how many households there were in each village. It would be difficult to achieve this through the conventional village listing methods used by surveys. We decided that a participatory approach based on social mapping would be more reliable. Firstly, it should be possible, by asking a group of knowledgeable people from the community to draw a map, to establish the extent of the village and its boundaries. Secondly, we could ask the participants to mark every household in the village on the map. In order to do this, the participants had to agree on what was a household, using the guideline definition that a household is a group of people who 'eat from the same pot'. Broadly speaking, this definition of household was shared by the 1998 census and the SPLU.

During the GTIS, we found that the mapping was effective and straightforward as far as establishing the extent of the village and its boundaries. But the question of marking households was more complicated, as participants often argued that the 'eating from the same pot' definition was not appropriate. Indeed, defining a household in rural Malawi is not easy. The NSO definition used for the 1998 census provides an indication of the complexity of the 'eating from the same pot' definition:

> A household consists of one or more persons, related or unrelated, who make common provision for food and regularly take their food from the same pot and/or share the same grain store (nkhokwe) or pool incomes for the purpose of purchasing food.
>
> (NSO 1998 in Wingfield Digby 2000)

[5] The sampling scheme and sample size were determined by the Statistical Services Centre (SSC) at The University of Reading and a statistician from the Centre for Social Research, University of Malawi. For further details of the sampling design, see Wingfield Digby (2000). In the end, only 54 villages were covered in the time available.

Picture 2.1: Map of Kwilindi 1 village



Source: GTIS study for Module 5 of the 1999–2000 Starter Pack evaluation.

There are further complications to defining households in societies where polygamy is prevalent, as several wives living in the same compound may or may not eat together but often regard themselves as separate households. Also, people who would not normally be considered as belonging to the same household may come together temporarily during times of food shortage and go their own ways in times of plenty. However, because of these complications, we felt that the participatory approach of the GTIS was more likely to provide reliable results than a survey-style village listing of households, in which there is no discussion of these issues.

Through the mapping and marking of households, the study produced a 'participatory household listing'. A total of 6,326 households were listed in the 54 villages studied. Each household was given a unique number (see Picture 2.1), which could be used to identify it. The fact that the household listing was done by a group using a visual tool (the map) contributed to its reliability, as each of the participants was able to check that the information being recorded was correct. Thus, the final household listing incorporated cross-checking by several knowledgeable members of the community.

The researchers then visited every household and interviewed the household head using a two-page questionnaire identified with the same number as on the map (see Wingfield Digby, Annex B). The main purpose of this questionnaire was to collect data on the number of people in each household. Additional demographic data (household size and composition) and information about which members of the household cultivated some land, registration for Starter Pack and receipt of packs were also collected.

The participatory household listing and the survey of every household[6] provided figures for the number of households and size of population in our sample of villages. Given the combination of participatory and survey methods used in the GTIS, we were confident that these results were reliable. A former UK government statistician with experience in handling demographic data in Africa (Wingfield Digby) was then able to provide a national population estimate by scaling up the data for the sample. In order to do this, he used the SPLU register. He calculated the ratio of households found in the GTIS to "farm families"[7] recorded on the SPLU register and applied this to the number of farm families registered by the SPLU in each Extension Planning Area (EPA) in order to calculate the number of households in each EPA. Then he used the EPA estimates of households to scale up, generating estimates at Agricultural Development Division (ADD)[8] and national levels. The scaling up process used weights and adjustments for non-response, including the failure of the GTIS to visit six of the sampled villages.

On the basis of the GTIS and the SPLU list of villages, Wingfield Digby estimated that there were 2.78 million households and a population of 11.52 million in rural Malawi. A pre-condition for calculating such estimates is the existence of a reliable set of weights. In this study, the weights came from the register of farm families provided by the SPLU, which was a list of all farm families in rural Malawi.[9] Weights can also be obtained from other sources such as the national census.

What evidence did this study provide to policy-makers and donors? Firstly, it showed that the SPLU register was quite reliable, and could therefore be used for planning purposes (e.g. by agricultural programmes, food aid interventions etc). The total number of households estimated by the GTIS was close to that registered by the SPLU, and the linear relationship between the two was close. Wingfield Digby (2000) reported that: 'The R2 value is 0.81, indicating a fairly high degree of correlation (0.9) between the two counts. We can also see that the trend line is at about 45 degrees through the origin, suggesting a direct link between the two counts. If we wanted to estimate the number of households in a village, the number of farm families shown on the register would provide a good indicator' (see Figure 2.1).

Secondly, the study's findings were surprising, 'in that they suggested that the size of the rural population was considerably larger than the figures obtained in the 1998 population census' (Wingfield Digby 2000). The GTIS suggested that the rural population was three million people larger than the census (at 11.5 million compared with 8.5 million), only two years later. It would be possible to cross-check the findings by comparing, for each village visited by the GTIS, the census counts with the figures generated by our study, but the census counts are not publicly available at village level and the NSO did not respond to our invitation to make this comparison.

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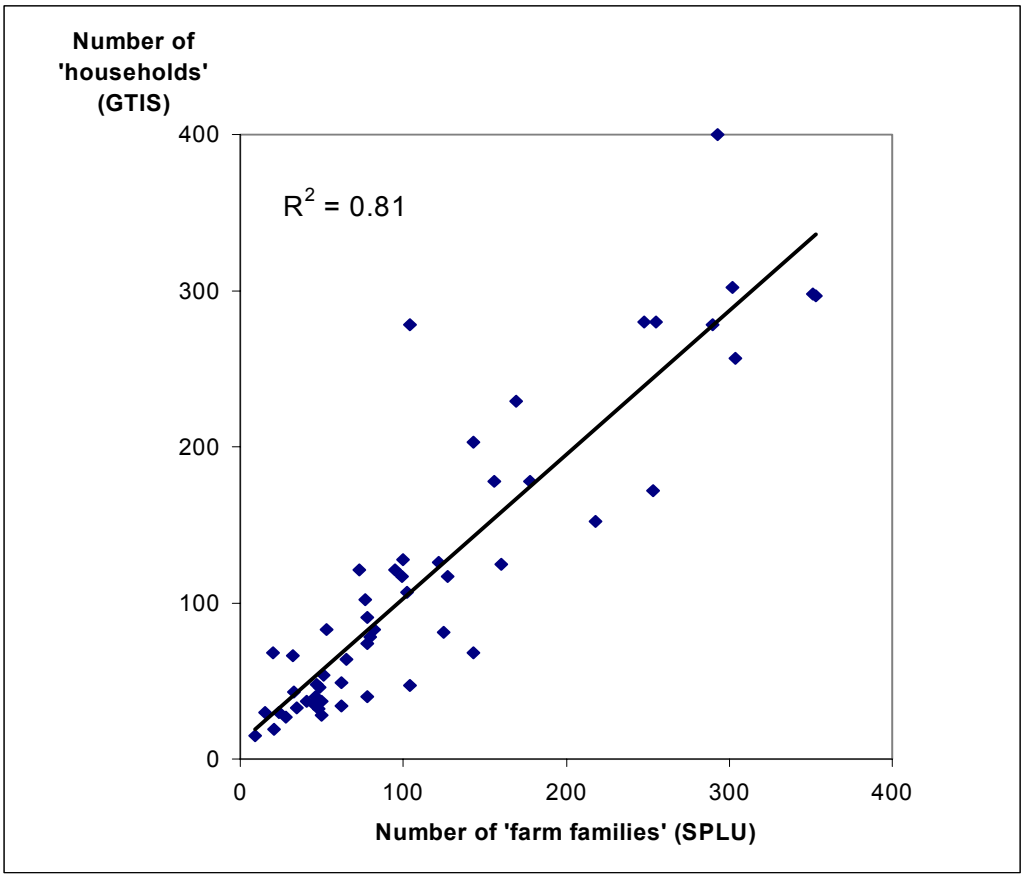
6 In fact, there were 72 non-responses due to absence or sickness of household head, and some households were removed during data processing, leaving 6,134 households (Wingfield Digby 2000).

7 A "farm family" – the unit used by the SPLU – was similar to a rural household, but there was a lack of clarity about its definition (as acknowledged by the SPLU).

8 ADDs and EPAs are administrative divisions of the Ministry of Agriculture. There are eight ADDs in Malawi. These are divided into Rural Development Projects (RDPs), EPAs and sections.

9 See Wingfield Digby (2000) for a full explanation of the derivation of weights for this study.

Figure 2.1 Sample villages classified by number of "households" in them and by number of "farm families" registered for Starter Pack



Source: Wingfield Digby (2000).

Policy relevance

- Participatory household listing based on village mapping – combined with household enumeration using a simple questionnaire or form – is a reliable way of counting people in rural areas. It can also be used to cross-check population figures from other sources, such as the census.

Policy challenges

- The GTIS study findings have not been taken seriously by the NSO, Malawi government policy-makers or donors, who continue to uphold the 1998 census. When questions are raised about official population figures, stakeholders should demand further exploration of the data and, if necessary, commission further ground truth studies. If the 1998 census did seriously underestimate the rural population, as our work suggests, this has important consequences for government and donor-funded interventions as well as official figures such as GDP per capita.

Methodology points

- It is essential to make sure that the participatory household listing lists every household in every sampled village (our non-responses and missing villages caused problems when scaling up). This can be difficult in large villages, or those that are divided by topography. Enough time needs to be allocated to ensuring complete mapping and full enumeration of households. In large villages or those with separate clusters of households, more than one map may be needed.
- The definition of household is often difficult. Clear guidelines should be provided to field researchers. In some cases – e.g. when the study is designed to cross-check another data source – the guidelines should be in line with the source being cross-checked (e.g. the census definition of a household). In other cases, more flexibility may be desirable to reflect local variations pointed out by participants.
- When doing the village mapping, it helps to write down the name of the household head on the maps as well as the number of the household, so that the household can easily be found during the survey. However, care should be taken to disguise personal information when storing and presenting the maps.
- In order to scale up from the village level and provide reliable estimates at the national level, it is necessary to have reliable weights for the sample.

2.2 Can we target the poor?

2.2.1 Overview of the studies

After the first two years of Starter Pack (1998–99 and 1999–2000), when enough packs were distributed for every household in the country, donors put pressure on the government to target the packs to the poorest rural households. The number of packs available for distribution was reduced from 2.9 million in 1999–2000 to 1.5 million in the 2000–01 season and 1 million in 2001–02. Because of this policy shift, poverty targeting became an issue. The name of the programme changed from Starter Pack to 'Targeted Inputs Programme' (TIP) to reflect this emphasis.

However, poverty targeting was only a goal. Translating it into reality raised a number of questions:

1. What percentage of the rural population is poor?
2. Do the proportions vary from place to place (between and within regions)?
3. Would it actually be possible, in practice, to target the poor?

Initially it was assumed that we know what is the "right" percentage of the population to target with each intervention. For instance, it was argued – on the basis of a number of studies carried out in the late 1990s, including the *1998 Integrated Household Survey* (NSO 1998) – that some 20–25 per cent of the rural population is extremely poor. The Government of Malawi uses this figure as the basis for the coverage of its National Safety Nets Programme. Meanwhile, a figure of 5–10 per cent of the rural population is mentioned for the "destitute" or "very vulnerable" – although we know of no credible evidence to

support this estimate. Policy-makers and donors also tend to assume that targeting can be applied across the board at these levels (without variations between or within regions), although there has been some discussion of "geographical targeting" – i.e. providing more assistance to poorer areas.

Another assumption that was (and often still is) made by policy-makers and donors was that poverty targeting is *feasible* at the "right" levels of targeting. However, there is, in our experience, a big difference between knowing – or believing – that around 20–25 per cent of the population is very poor, or that 5–10 per cent is destitute, and being able to identify these people for the practical purpose of targeting an intervention. If we are to translate the theory into practical actions, we need to find an easy way of selecting the desired percentage of the population as beneficiaries. The TIP thought that the simplest way to do this would be by asking local people to select beneficiaries – in other words, to rely on "community targeting". It assumed firstly that local people know who the poor are and secondly that they would be willing and able to target them.

We carried out two research studies using participatory methods to address these questions. As we were learning lessons as we went along, the chronological order of the studies does not match the order of the questions set out in 1–3 above:

- Module 4 of the 2000–01 TIP evaluation (Chinsinga 2001) set out to divide the households in each village into well-being categories (including the poor and vulnerable) and then to simulate the process of beneficiary selection. A key aim of the study was to find out whether community targeting was feasible at pre-established targeting levels, and, if so, under what conditions.
- Module 2 of the 2001–02 TIP evaluation (Chinsinga 2002) aimed to answer the question 'What percentage of the rural population is poor?'. It also aimed to find out whether the 2001–02 TIP had been successful in targeting the poor, and if not (as was likely, given that it had failed to target the poor in 2000–01), why not? Finally, it set out to establish whether there was a feasible level of targeting for TIP, whether this coincided with the proportion of the rural population identified as "poor", and whether it varied between and within regions.

2.2.2 Consultations with the poor on safety nets

Module 4 of the 2000–01 TIP evaluation, entitled *Consultations with the Poor on Safety Nets*, was participatory in approach. The idea was to let the communities speak for themselves on whether or not they had social support systems (which might be seen as "traditional" safety nets), and on definitions of poverty. Work in each village began with a group discussion on social support systems, including changes over time and the role played by the authorities (the village heads and their advisors). This was followed by a discussion of well/ill-being, wealth/poverty and vulnerability. The study found that: 'Communities often distinguished many categories, with characteristics being a mixture of poverty and vulnerability' (Chinsinga 2001). Local definitions varied from place to place.

As we were interested in knowing not only how each community saw itself in terms of well/ill-being, wealth/poverty and vulnerability but also *how many households belonged to each category*, the discussion involved

a form of social mapping which we call 'community mapping with cards'.[10] As in the case of the GTIS carried out in 1999–2000 (see Section 2.1), the participants were asked to draw a social map and mark each household on it, numbering the households as they went along. But in this case we also asked the participants to prepare a card for each household on the map and to sort the cards into groups so that we could see which households belonged to each of the well-being/poverty categories that they had defined. Each card was then marked with by the facilitator with a symbol denoting its well-being/poverty category. This would allow us to find out what proportion of each village was in each category – in particular, what proportion were poor.

The main aim of the study was not, however, to find out how many people were poor in each village, but to find out whether community targeting was feasible at pre-established targeting levels, and, if so, under what conditions. In other words, if community members were asked to select 10 per cent of households to receive "direct welfare transfers" (monthly handouts of food or cash) or to select one-third of households to receive TIP,[11] could they do it fairly (on the basis of agreed criteria)? And would the outcome favour the poor and the vulnerable?

In order to find answers to these questions, we decided to use the household cards to simulate as closely as possible the process of beneficiary selection. Chinsinga (2001) explains how this was done:

> On the third day spent in the village, the team convened two separate focus groups (FGs), one for cash and one for in-kind transfers. It was explained to the FG members that the government was considering the possibility of providing cash/in-kind benefits for a certain number of people in the village (the number was calculated by the study team to be 10 per cent of the households in the village). The in-kind transfers would be likely to include a package of goods (4 plates, 2 cooking utensils, 1 pail, 1 blanket, 10 tablets washing soap, 10 tablets bathing soap) in August followed by one 50-kg bag of maize every month between December and July. The cash transfers would be worth K550 per month and would be given all year round. The FG members were then asked to decide what criteria they would use to select the beneficiaries, and to show how they would do the selection by playing a game of choosing households (or individuals within households) who would benefit, using the cards produced during the social mapping exercise.
>
> The same cards were used on the fourth day with a different group of FG participants to simulate the selection of beneficiaries for the 2001–02 TIP . . . Wherever possible, one FG on TIP beneficiary selection included the village head while another ran simultaneously without the village head.

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[10] In our Malawi studies, we usually refer to this as "social mapping" and "card games". In this paper, we refer to "community mapping with cards" because the main product is not an analysis of social features, although it is possible to combine the approach with a social emphasis.

[11] Policy-makers and donors had agreed to provide enough packs for one-third of rural households in the next agricultural season (2001–02).

In some cases, particularly in the poorer central and southern regions of Malawi, several "rounds" were required to reduce the list of "beneficiaries" to the target level. By the end of the "game", we had a group of "beneficiaries" for each intervention: direct welfare transfers and TIP. We could check whether these were in the poorest categories (using the well-being/poverty category symbols on the household cards) and we could also check how much "self-selection" by participants in the FG was taking place – and whether or not this was justified in terms of their poverty/well-being status. During the "game", we also learnt what criteria were used for targeting and how the participants reacted to being asked to target.

Chinsinga (2001) found that there was 'great resistance against targeting, which was in virtually all sites overcome by explaining that it was merely a game'. Targeting goes against 'the egalitarian values of village society'. There was least resistance in the northern region, probably because of higher education levels and lower incidence of poverty/vulnerability than in the centre and south. The study notes that 'the 2000–01 TIP has left a great distrust of the role of village heads in targeting', but with facilitation by outsiders, a fair process of beneficiary selection (targeting) was possible.

> In the case of direct welfare transfers, they were able to select the most vulnerable and poor members of their communities (with minimal unjustified self-selection). However, when asked to select one-third of the households in the village for TIP self-selection or selection of relatives became common once all the vulnerable people had been included.

Thus, by using community mapping with cards, followed by a "game" simulating beneficiary selection at the 10 per cent level for direct welfare transfers and the 33 per cent level for TIP, we learnt that community targeting at these levels is possible, but that there is considerable resistance to it and without facilitation by outsiders it cannot be trusted to achieve a fair outcome.

Policy relevance

- Community poverty targeting (with a fair outcome) *is* feasible at pre-established targeting levels, especially for the type of intervention – like direct welfare transfers – which targets the very vulnerable.
- However, there is strong resistance to poverty targeting, and much mistrust of the role of the village power structures. Facilitation by outsiders (expensive in terms of time and money) is needed.

Policy challenges

- It is clear that the targeting level (i.e. the proportion of households that is to receive the benefit) makes a major difference to the feasibility of targeting. If the level is too low with respect to poverty levels, communities find it hard to work within the quota, as this means excluding people who *should* qualify for the benefit. So it is essential to get the targeting level right. This means being able to estimate accurately – in advance – the percentage of households that should qualify for a particular benefit, according to the agreed criteria.

Methodology points

- The household cards proved useful in identifying how many households were in each well-being/poverty category in each village, and matching this with information about beneficiary selection. The cards could be sorted into groups, and assessed one by one for whether they met targeting criteria.
- Information could be kept on each household card using symbols. These could be transparent, or coded in order to "blind" participants in later discussions (see section 4.2.2). For instance, codes were used for well-being/poverty so that participants in the beneficiary selection FGs would not be influenced in their choices by information on the cards about whether households belonged to a "wealthy" or "poor" group.
- Although well-being/poverty information on the cards could be aggregated up to the village level, we were unable to aggregate to national level because of widely varying local definitions of poverty. This stimulated a modification of our approach in Module 2 of the 2001–02 TIP evaluation (see Section 2.2.3).
- Our methodology was not able to assess whether 10 per cent or 33 per cent was the "right" targeting level, or whether this varied from place to place. The fact that we were unable to answer these questions stimulated the development of an appropriate methodology in Module 2 of the 2001–02 TIP evaluation.
- A problem was identified in terms of distrust of power structures, but our methodology was unable to quantify the impact of this on the targeting outcome. Once this issue had been raised, we attempted to address it through the methodology developed for Module 2 of the 2001–02 TIP evaluation.

2.2.3 TIP messages

In the 2001–02 TIP, there were enough packs available for roughly one-third of households in rural areas, and these were intended to go to the poorest households through a process of community targeting in which Village Task Forces (VTFs), made up of the village head and his/her advisers, were to select beneficiaries.

Our starting point for Module 2 of the 2001–02 TIP evaluation, entitled TIP Messages, was that we needed to be able to estimate the proportion of "poor" or "very poor" in the population at national as well as at village level. This would allow us to do two things: first, to find out if TIP was succeeding in targeting the poor (at the one-third level); and second, to find out what was the "right" targeting level for TIP in Malawi, and whether this varied between and within regions. Finally, we wanted to quantify the impact of the involvement of village power structures, so that this could be taken into account in determining future targeting levels.

2.2.3.1 Proportion of poor households and poverty targeting

The well-being/poverty categories in Module 4 of the 2000–01 TIP evaluation were a form of *wealth ranking based on local definitions*, so it was impossible to compare results between different villages. For instance, in Chikadza village in Chikwawa (southern region), households were classified into three categories – poor, medium and rich. Meanwhile, in Chakuwereka village in Karonga (northern region), the participants identified four categories – the relatively well-to-do; the "struggling"; the very poor; and the vulnerable. And in Kasalika village in Lilongwe (central region), they distinguished six categories of household – the "struggling"; the very, very poor; the poor; the elderly; households with orphans; and "average" households.

These outcomes are not comparable. For example, in Chikadza, the participants identified 139 "poor" households out of a total of 181, representing 77 per cent of the village. But in Kasalika only five households were described as "poor" – 10 per cent of the village. Of course, other categories might also be regarded as poor in Kasalika – the problem is, which ones to include? And how poor are the ones we might decide to include in Kasalika compared with the poor identified in Chikadza?

Similarly, how could we compare the "very, very poor" category as identified in Kasalika with the situation in Chikadza, where no such category was defined? Or in Chakuwereka, where we cannot be sure if the equivalent is the "very poor" or the "vulnerable" – or some households in both categories?

These *relative* measurements of poverty within each community were not enough for Module 2 of the 2001–02 TIP evaluation. We needed a more *absolute* yardstick: something that would be able to consistently distinguish the "poor" and the "very poor" in all communities, so that we could aggregate the results at a national level.

Thus, we decided to work with a more absolute definition of poverty. In our view, such definitions are quite specific to each developing country (or part of it), and should be developed through discussions with communities about how they see poverty, and by consulting previous research. We had the benefit of the 'Consultations with the Poor on Safety Nets' study, as well as research by Van Donge (2001), which assessed how the poor perceive poverty. Both of these studies found that food security is perceived as a key indicator of poverty in rural Malawi.[12] We therefore decided to use food security as a proxy for poverty. We agreed to use the following definitions in all study sites:

- **Food Secure (FS)**: 'Households that have enough to eat throughout the year from harvest to harvest'.
- **Food Insecure (FI)**: 'Households that have enough food to last from harvest up to Christmas but not between Christmas and the next harvest'. (The harvest in Malawi is in April/May).

[12] This is true for rural areas in many developing countries. Brock (1999), reviewing participatory work on poverty and ill-being worldwide for the World Bank's 'Consultations with the Poor' workshop, observed that: 'Respondents in rural areas placed a strong emphasis on food security in their definitions of poverty, ill-being and vulnerability, as well as lack of work, money and assets'.

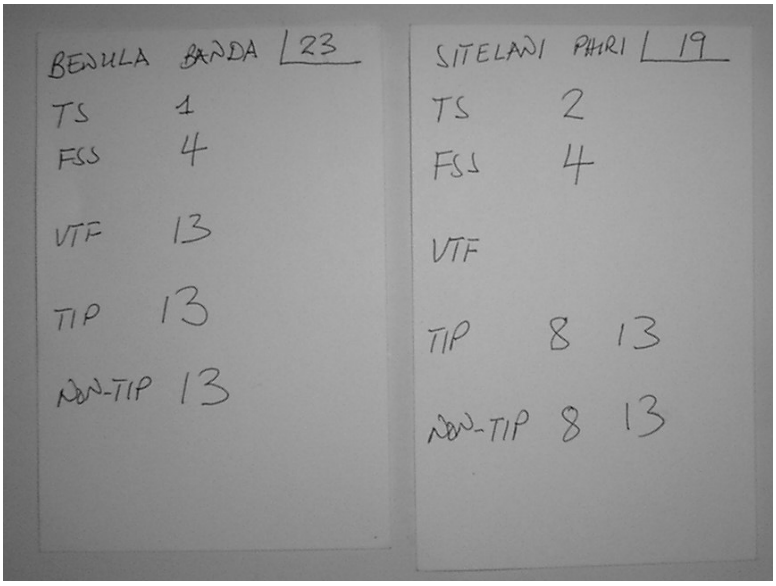
- **Extremely Food Insecure (EFI)**: 'Households that have a longer period of not having enough to eat. These households start facing severe food shortages before Christmas'.

Food security is by no means a perfect indicator of poverty, and it might be argued that others are better – but the principle is to find something which is:

a. meaningful to participants (and means the same in every place),
b. simple – so that it is clear which category each household fits into, and
c. capable of differentiating between the groups of interest to the study, such as the well-off, the poor and the extremely poor.

Unlike when asking communities to define poverty/vulnerability in their own terms, it should be stressed that the aim here was to *avoid complexity*. We only needed to divide the village into different groups so that we could assess the impact of an intervention (TIP). Of course the two approaches are not mutually exclusive – it would be possible to have a broad discussion of poverty/vulnerability and then use a simple, absolute poverty indicator to divide the village into groups.

Picture 2.2 Household cards – Module 2 of the 2001–02 TIP evaluation



Note: Two cards are shown. TS = TIP Status: 1 for receipt or 2 for non-receipt of TIP. FSS = Food Security Status: 3 for Food Secure (FS), 4 for Food Insecure (FI) and 5 for Extremely Food Insecure (EFI). VTF = Village Task Force focus group. TIP = TIP beneficiary focus group. Non-TIP = non-beneficiary focus group. For a full explanation, see Sections 2.2.3.1 and 2.2.3.2.
Source: Chinsinga (2002).

The process at village level began with a community mapping exercise. The participants were asked to show on the map the location of every household in the village and to prepare a card for each household (see Picture 2.2), with the name of the household head and a household number in the top right-hand

corner (Chinsinga 2002). Every household in the village appeared on the map and a card was prepared for each household with the same number that appeared on the map.[13]

The facilitator then introduced the discussion of food insecurity, explaining our definitions and asking participants what were the characteristics of households in each category. After some discussion, participants were asked to put each household card into the appropriate food security category, and its Food Security Status (FSS) was marked on the card by the facilitator. Finally, participants were asked to say which households received a TIP pack, and the facilitator marked the TIP Status (TS) of the household on the card.

Table 2.1 Relationship between receipt of TIP and food security status

Food Security Status	TIP recipients (%)	Non-recipients (%)	Total households (%)
FS	21.2	33.5	28.9
FI	38.5	39.7	39.3
EFI	40.3	26.8	31.8
Total	100.0	100.0	100.0

Source: Adapted from Chinsinga (2002).

What did we achieve by using this method? First, we know for each village *and* for all villages together, what proportion of households are extremely food insecure (very poor). Table 2.1 shows that 32 per cent of households in the villages visited were extremely food insecure in the 2001–02 season. This is our *national estimate* of the proportion of the population suffering from extreme food insecurity.

Second, we know that TIP was not very successful in targeting these households. If targeting had been successful, all extremely food insecure households should have received a pack; and food secure households should not have received one. This was not the case, although the proportion of extremely food insecure TIP recipients was slightly higher than for non-recipients. A formal statistical test could be used to check if the distribution of inputs really matched food security status. However, in our view formal tests are unnecessary because this exploratory analysis presented enough evidence to show that TIP distribution did not effectively favour the food insecure. The Chinsinga (2002) report concluded that: 'There were considerable "inclusion" and "exclusion" errors in the poverty targeting process'.

Policy relevance

- We can use this approach to rapidly estimate the proportion of the rural population that is very poor/extremely food insecure. In 2001–02 in Malawi, 32 per cent were found to be extremely food insecure. With an appropriate strategy for sampling villages (see Section 3.3.4), we can provide such

[13] For further information, see Chinsinga (2002) Appendix 3: Field Manual.

estimates at district, regional or national levels. They are easy to produce, reliable (see methodology points) and can be used to find out how many people should qualify for an intervention such as direct welfare transfers or food aid.

- This approach is also an efficient way to answer the question 'Did an intervention succeed in targeting the poor?'. We found that at the one-third targeting level in 2001–02, TIP was not very effective in targeting the poor. Questions about the impact of specific interventions cannot be answered by the type of household surveys carried out on regular bases by national statistical offices because the population surveyed is unlikely to coincide with the population targeted by the intervention.

Policy challenges

- The usefulness of the findings of this approach were immediately perceived by donors in Malawi, but more needs to be done to emphasise the link between the findings and the innovative methodology used to produce them. Neither the government's Safety Nets unit nor any of the NGOs operating in the country – who would be likely to get the most out of using the approach – have taken this on board.

2.2.3.2 The "right" targeting level

Having found out that 32 per cent of rural households were extremely food insecure, we might have recommended that this was the right proportion of households to target with TIP. However, the experience of community targeting at this level in 2001–02 was *not successful*. One-third of households were targeted to receive packs (the same as the extremely food insecure proportion of the population), but these did not only go to EFI households. We wanted to know what went wrong and how this should influence the policy-makers' and donors' decision about the right targeting level.

We decided to organise FG discussions on beneficiary selection. The idea was to discover what proportion of households selected for TIP in 2001–02 actually met the communities' selection criteria (a mixture of official criteria and their own) and therefore *should* have qualified for a pack; and conversely, what proportion of those who benefited from TIP in 2001–02 *should not* have received a pack.

We also wanted to find out how much agreement existed between different stakeholders – the VTF, the beneficiaries and the non-beneficiaries – about who should receive a pack and who could safely be excluded from TIP. This was important, because we could only be sure that the selection process would be perceived as fair if there was *consensus* on who should be included and who should be excluded. In addition, we wanted to find out if there were variations in the proportion of deserving households in different parts of the country.

Finally, we wanted to find out if members of village power structures would select themselves and their families before choosing those agreed to be "deserving", as this would push up the number of packs needed if unfair exclusions were to be avoided.

We decided to ask members of the community to discuss each household card to determine whether or not it should qualify as a TIP recipient. In order to achieve this, the study team organised three FG discussions: one with the VTF (or the Village Head if there was no VTF); one with a group of TIP beneficiaries; and one with a group of non-beneficiaries.[14] The objective was that all three groups of stakeholders should decide independently whether each household in the village met any criteria for inclusion in TIP; the researchers would then write the code for the relevant criteria (one or more might be mentioned) on the household card against the relevant focus group – VTF, TIP and Non-TIP (see Picture 2.2 and Table 2.2).

The study found that the stakeholders involved in the three different FGs were able to decide whether households fulfilled any criteria to receive TIP; they were also able to identify households that did not qualify by any criteria to receive TIP. We found that there was substantial agreement between stakeholders on who deserved to be included and who might be excluded from the programme.

The cards allowed us to keep information at household level which in turn allowed us to match this information with information about receipt of TIP. For example, we might have a household that was agreed to qualify by all three FGs because the household head was elderly, and our information might indicate that the household received a TIP pack. We might have another household that did not receive a pack; this household might have been recorded as qualifying (code 6) by two FGs, but as not fulfilling any criteria (code 10) by the third group.

We were now in a position to analyse the data on the household cards. Our data analysis focused on three aspects:

1. Did the VTFs/Village Heads who selected the beneficiaries in 2001–02 select only the deserving and exclude only the non-deserving?
2. Is there a group that can be agreed by all local stakeholders to be deserving, and what proportion of rural households does this represent?
3. If communities were to undertake beneficiary selection in future and enough packs were provided for all deserving households, would we expect them to target the deserving households only?

The information from each FG was analysed as follows. First, the cards of *TIP beneficiaries* were classified according to all qualifying criteria and Code 10 (did not satisfy any criterion to receive TIP); the same was done for the *non-beneficiary* cards. This produced six tables of data similar to the example in Table 2.2,[15] which shows the national-level results for the *TIP beneficiary cards* classified by the *non-beneficiary focus group members*.

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14 For further details on the methodology, see Barahona and Levy (2002) and Chinsinga (2002), Appendix 3.

15 The full set of tables and analysis is presented in Chinsinga (2002), Section 4.5.

We can see that the TIP beneficiaries qualified to receive TIP for many reasons, but according to the non-recipient FGs, 18 per cent of cases[16] did not meet any criteria and therefore should not have received TIP. A similar analysis of *non-beneficiary cards* classified by the three FGs showed that over half of non-beneficiaries met the criteria to qualify for TIP although they did not get a pack. Thus, we can answer "no" to our question 'Did the VTFs/Village Heads who selected the beneficiaries in 2001–02 select only the deserving and exclude only the non-deserving?'

Table 2.2 TIP recipients – criteria used by non-recipient focus groups

Category label	Code	Count	Pct of Responses	Pct of Cases
Food insecure	4	1	.2	.2
Extremely food insecure	5	34	6.7	8.5
Elderly	6	114	22.4	28.4
Household keeping orphans	7	43	8.4	10.7
Widow/widower	8	37	7.3	9.2
Household keeping disabled	9	15	2.9	3.7
Does not satisfy any criteria to receive	10	73	14.3	18.2
No support or income	11	37	7.3	9.2
Divorced	12	28	5.5	7.0
Without seeds	13	29	5.7	7.2
Without fertiliser	14	17	3.3	4.2
Sickly household head	15	33	6.5	8.2
House of a junior wife in polygamous HH	16	3	.6	.7
Energetic/able-bodied	17	9	1.8	2.2
People involved in development work	19	1	.2	.2
Those without large gardens	20	1	.2	.2
Households with a large number of depend	21	6	1.2	1.5
Households keeping the elderly	24	1	.2	.2
Those who volunteered to receive TIP	27	18	3.5	4.5
Newly married without resources	28	3	.6	.7
Members of VTF	29	7	1.4	1.7
Total responses		510	100.0	127.2

43 missing cases; 401 valid cases

Source: Chinsinga (2002).

The second part of the analysis of data from the FG discussions focused on Code 10 (did not satisfy any criterion to receive TIP). First, we looked at Code 10 households as a percentage of total households in the communities visited. We found that at national level between 32 per cent of households (according to VTFs) and 36 per cent (according to TIP beneficiaries) did not deserve to receive TIP, i.e. 64–68 per cent did deserve to receive a pack (see Table 2.3). This indicated that the number of packs distributed in 2001–02 was, in the opinion of those doing the targeting and the recipient communities, well below the number of households that deserved to receive TIP. However, we can now answer our second question: 'Is there a group that can be agreed by all local stakeholders to be deserving, and what proportion of rural households does this represent?'. There is a group that can be agreed by all stakeholders to be deserving, and this is around two-thirds of rural households.

16 We use percentage of cases rather than percentage of responses because this is a multiple response (i.e. one household may qualify for one, two or more reasons).

Table 2.3 Code 10 analysis at national level

Focus Group	Code 10 households		% of total households
	Recipients %	Non-recipients %	
VTF	14.1	41.9	31.6
TIP beneficiaries	16.5	47.3	35.8
Non-beneficiaries	18.2	41.2	33.1
Total	100.0	100.0	100.0

Source: Adapted from Chinsinga (2002).

However, the study found variations between sites, which 'would give rise to allegations of unfairness at local level even if the overall level of coverage were adjusted to take account of regional variations' (Chinsinga 2002). Table 2.4 shows the results on a village-by-village basis, indicating the extent of variability.

Our third question was: 'If communities were to undertake beneficiary selection in future and enough packs were provided for all deserving households, would we expect them to target the deserving households only?'. There are two problems here: first, even if the stakeholders agreed that around two-thirds of households were deserving, the village power structures might give priority in the selection process to themselves and their families whether or not they deserved to receive a pack, leading to "inclusion errors". Data analysis showed that this affected 4–8 per cent of households.

Second, while there was general consensus about the two-thirds level, there was disagreement between stakeholders about a number of specific cases. So if we provided enough packs for two-thirds of households, some households might be unfairly excluded. Chinsinga found that because of "inclusion errors" related to the influence of village power structures and the disagreements about specific cases.

> The coverage of the programme would need to be 80 per cent of households at national level, varying from 60 per cent in the north to 87 per cent in the centre and 89 per cent in the south. Anything short of this coverage would lead to continued allegations of unfairness, which erode social cohesion at village level.
>
> (Chinsinga 2002)

Table 2.4 Variability in the proportions of deserving TIP recipients

		According to VTF		According to beneficiaries		According to Non-beneficiaries	
Village	**Region**	**% should receive**	**% should not receive**	**% should receive**	**% should not receive**	**% should receive**	**% should not receive**
Chilarika II	North	32.4	67.6	36.8	63.2	33.8	66.2
Kafwala	North	51.2	48.8	78.0	22.0	82.9	17.1
M. Chivunga	North	63.3	36.7	45.6	54.4	55.0	45.0
Mdambazuka	North	43.2	56.8	40.5	59.5	40.5	59.5
S. Chipeta	North	51.4	45.5	59.5	40.5	51.4	48.6
Chatowa	Centre	100.0	0.0	90.0	10.0	85.0	15.0
Daudi	Centre	100.0	0.0	100.0	0.0	93.3	6.7
Matapa	Centre	53.5	46.5	55.6	44.4	69.7	30.3
Mdala	Centre	81.0	19.0	77.6	22.4	67.2	32.8
Mkanile	Centre	77.9	22.1	83.8	16.2	82.4	17.6
Mkhomo	Centre	96.0	4.0	100.0	0.0	-	-
Nkhafi	Centre	87.1	12.9	93.5	6.5	95.2	4.8
Chimwaza	South	-	-	51.8	48.2	46.4	53.6
Chintengo	South	84.5	15.5	50.0	50.0	43.1	56.9
Chisalanga	South	-	-	89.8	10.2	95.9	4.1
Makuta	South	78.4	21.6	40.5	59.5	100.0	0.0
Mbepula	South	78.8	21.2	88.2	11.8	82.4	17.6
Mwambeni	South	74.5	25.5	60.1	39.9	57.5	42.5
Njuzi	South	62.7	37.3	41.8	58.2	83.6	16.4
Sitima	South	54.5	45.5	72.7	27.3	-	-

Source: Chinsinga (2002).

Policy relevance

- We have established that the "right" targeting level for TIP in Malawi is higher than the proportion of extremely food insecure households in the population. At national level, communities agreed that two-thirds of households "deserved" to receive this type of benefit. However, taking into account "inclusion errors" related to village power structures and disagreements within communities about specific cases, TIP packs should be provided for 80 per cent of households. At this targeting level, no-one should be unfairly excluded.
- Although it is possible to get the targeting level right at national level, the study also pointed to considerable variations between and within regions, which might still lead to unfair exclusion of beneficiaries is some areas.

Policy challenges

- If the right targeting level for TIP is around 80 per cent, it may not be worthwhile attempting to target at all – given the need for costly outside facilitation and the unpopularity of targeting in egalitarian rural societies (see Section 2.2.2).
- If resources are insufficient for universal or near-universal coverage of an intervention like TIP, policy-makers should question whether it is alright to implement it at the "wrong" targeting level – in view of the social problems caused by unfair community targeting.

Methodology points

- Because the same definitions were used in every site, and the card game was standardised across sites, the information produced was comparable between villages and could be aggregated to regional and national levels.
- We have information at *household level*, which allows us to explore and measure relationships between different factors (e.g. poverty and receipt of a benefit; criteria to qualify for a benefit and receipt of the benefit). However, instead of visiting every household in the village, this information is produced efficiently by asking group participants to act as "key informants" (see Section 3.3.4.1).
- We are able to compare the views of different stakeholders by asking each group the same questions about the same household cards. Thus we can quantify levels of consensus and disagreement between stakeholders.
- The approach is simple to do and can be understood by most participants. This means that it has a good chance of producing reliable results.
- We have information for *all* households in the villages visited, which means that we do not run the risk of having a biased selection of households within villages. Nor do we need to sample within our study sites, so we avoid within-village sampling error (see Part 3).
- However, large villages or urban settings present problems for mapping and producing cards. They need to be divided into manageable areas.

- As in Module 4 of the 2000–01 TIP evaluation, codes were used so that information recorded on the cards at one stage would not be obvious to participants in the next stage of the process, and would not bias their choices (see Section 4.2.2).
- With hindsight, we felt that we had missed an opportunity for carrying out analysis of some of the data in the community. It would have been possible to produce village-level tables similar to Table 2.1 with participants. These could have been the focus for feedback and further discussion (see Section 4.1).

Part 3 Generating statistics from participation

The studies presented in Part 2 of this paper show how we:

1. generated population estimates;
2. generated estimates of the proportion of people in a population with certain characteristics, e.g. the very poor/extremely food insecure, or those benefiting from an intervention;
3. generated estimates of the proportion of people in a population who should be targeted by an intervention (the "right" level of targeting); and
4. made comparisons between places, including variability.

In Part 3, we will explore further the methodology of these studies, highlighting the reasons for our claim that the statistics generated by them are at least as reliable as statistics obtained from traditional methods such as surveys.

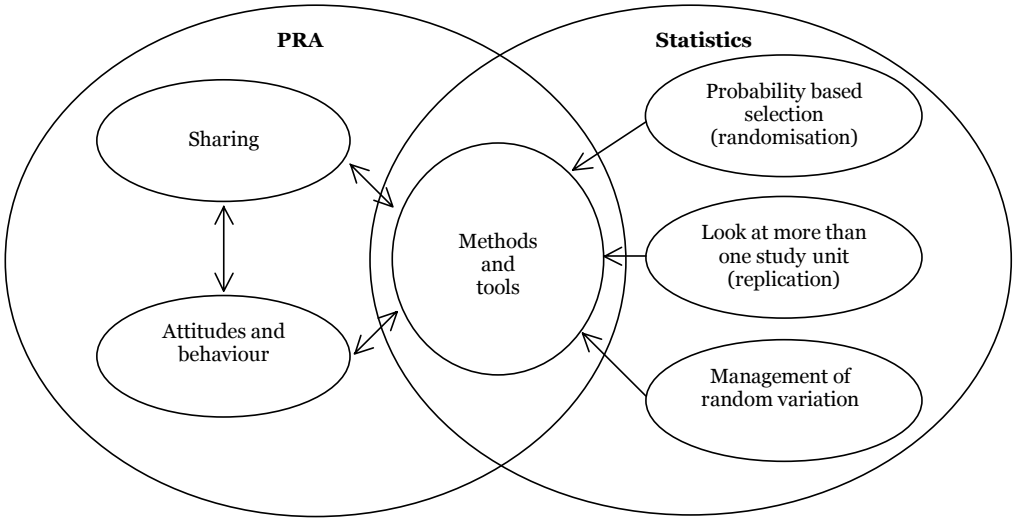
3.1 Building bridges

Readers familiar with PRA will easily list its three basic components: (1) sharing; (2) attitudes and behaviour; and (3) methods.[17] Readers familiar with statistical methods, particularly those who have taken a course on experimental design, will probably remember that there are three basic principles of design of experiments: (1) randomisation; (2) replication; and (3) management of random variation.

The full potential of participatory methods to generate statistics is realised when the design of the research takes into account basic statistical principles (see Sections 3.2–3.4), while the praxis of the research is based on a philosophy of participation. Both design and practice meet through the methods and the tools (see Sections 3.5–3.6).

[17] Mascarenhas (1991) quoted by Chambers (1994b).

Figure 3.1 Integration of PRA and statistical design of experiments



For those of us interested in building bridges between participatory methodologies and statistical principles some initial questions are:

- Are the conditions that make it possible to generalise from research based on statistical methods applicable to research that uses participatory methods?
- Are there any consequences of adopting statistical principles that affect the philosophy of participation?
- Are there any ethical implications that we need to consider?

We will attempt to answer these questions in the remainder of this paper.

3.2 Statistical principles and generalisation

3.2.1 The challenge of generalisation

Participation has a long history and has become a generally accepted philosophy of work for many people interested in development. It is probably due to the success that participatory methods have had in facilitating empowerment and action at the local level that participation ideas have been exported to multiple areas of application. In the past 15 years, there has been an explosion of innovation in participatory methods with applications in research.[18] The adoption of the behaviours, approaches and methods of participation makes sense for research, but at the same time produces new challenges. One of these new challenges is that of generating results that can be generalised and used to influence decision-making.

[18] In this paper we use the word "research" to refer to the process of collection and analysis of information with the purpose of learning and acquiring a better understanding of a situation and to facilitate evidence-based decision-making.

What do people mean when they say that a result is generalisable? They usually mean that information collected from a sub-section of a population, processed and analysed by the researcher, can be used to reach conclusions that apply to the population as a whole. This process is called inference. Information acquired[19] through participatory methods is often seen as context-dependent and not suitable for making inferences.

Results from studies based on statistical methods such as surveys are accepted as potentially suitable for making generalisations.[20] We start this discussion by exploring what are the elements that allow statistical methods to claim that their findings can be generalised. Later, we discuss how some of these elements can be adopted in research using participatory methods to allow a similar claim, and what are the consequences of this.

3.2.2 A matter of definition

To what population do the results apply? Statistical methods solve this problem right at the beginning of the research process by identifying or constructing a definition for the population of interest or "study population".

The population is often defined in terms of the properties of its elements, their location or a combination of both. These populations go from real, easy to identify groups such as "smallholder farmers in rural Malawi" to constructs that define scattered units, whose identification is not trivial, and that only form a coherent body in so far as sharing certain properties. An example could be "the vulnerable poor" of the country. Whatever definition of population is agreed and used for selecting the subset of members about whom information is collected, determines the population to which the inferences made will apply.

3.2.3 An issue of fairness and transparency

In most cases the population of interest is too large to allow the researcher to seek information on each and every one of its members. In consequence, most studies reach only a small part of the population: a sample. It is important to be able to convince the users of the information that the sample is a fair representation of the whole population – at least insofar as the objectives of the study are concerned. In other words, that the sample is "representative".

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19 We prefer the term "acquire" to "extract" as in the process of research using participatory methods the researcher has the explicit and transparent intention of acquiring information that will help in the fulfilment of the research objectives.

20 However, the user of such results should take the precaution of checking whether the methodology used gives the results the property of generalisability. Too often survey work is carried out with insufficient care to ensure that the results are reliable, let alone generalisable.

Studies based on statistical methods claim that a sample is more likely to be representative if the selection is carried out by:

First Using an objective method of selection where all members of the study population have a definable chance of being part of the sample.[21] This is called a "probability-based" method of selection.

Second Taking a sample that is large enough to capture the main features of the population as well as the divergence from the main features or "variability".[22]

3.2.3.1 What is the magic of probability-based selection?

The main argument for the use of probability-based selection is that it removes subjectivity from the process of selection and thus protects the researcher from the accusation of having chosen the elements "out of convenience" or "influenced by his/her own views", i.e. that the sample is not representative. Probability-based selection on its own does not guarantee that the sample is representative, but it does contribute to our claim that the sample is not a biased selection of elements in our population.

The question of bias is an important one. Random selection of villages for our Malawi studies ensured that we were likely to visit not only villages where access was easy and accommodation for the research team was of good quality, but also villages in remote areas where access was a major challenge and where the research team did not find comfortable accommodation facilities. Thus, we could not be accused of having biased our sample by neglecting remote areas.

Another argument for the use of probability-based sampling is that there is a large body of statistical theory that can be used to analyse data from this type of sample.

3.2.4 Managing uncertainty

You can be sure that if you take a sample and generalise your results to the total population you will not get it completely right. For the researcher using statistical methods the key question is not 'Did I get it right?' but 'How far away am I likely to be from getting it right?' Statistical inferences will normally be accompanied by an indication of the "precision" of the inference, which in practice often translates into a numerical range within which the researcher would expect to find the "true" population value.

This "precision" is influenced by three main factors:

1. how variable is the study population with respect to the characteristic of interest;
2. how the sample is collected; and
3. how big a sample is taken.

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[21] The fact that each member has a chance of being selected does not necessarily mean that all the members have the same chance of selection. In statistics, the simplest case, when all the members of the population have equal probability of being part of the sample, is a simple random sample. However, in practice it is often not possible, desirable or efficient, to select samples using simple random sampling.

[22] Sample size will be discussed in Section 3.4.

3.2.5 Conclusion

In summary, results from research based on statistical methods are accepted as applicable to the overall population because:

1. They apply directly to the population defined prior to carrying out the study and out of which the sample was taken.
2. They carry insurance against the accusation of not being representative because they use an objective, probability-based method to select the sample.
3. A measurement of the precision of the findings is given and therefore the generalisations made become "qualified generalisations" that the user can treat as reliable or not depending on the level of precision.

3.3 Sampling

3.3.1 Sampling in research using participatory methods

The need for sampling applies to research that generates statistics using participatory methods in the same way that it applies to survey work: if generalisations are to be made from the numerical data collected, adequate processes of sampling are required. A good deal of what has been written about sampling has to do with estimation of numerical characteristics. It is often written in language inaccessible to non-mathematicians and seems to have little relevance for the problems faced by those interested in research using participatory methods. However, we have found that sampling principles are useful when planning research using participatory methods. In this section, we discuss what we consider to be some of the key sampling issues.

In Malawi in 1999–2002, we consistently used statistical sampling methods to select our study sites (villages). Within the villages selected for the studies, we carried out discussions with smallholder farmers using participatory methods (see Part 2). We are confident that our conclusions can be generalised because:

- The results come from a considerable number of sites allowing us to look at patterns and variability.
- We used a method of selection of sites that avoids researcher bias and allows us to claim that the sites are representative of the study population.

3.3.2 Population definition and the basic unit of study

Before a sample is drawn, we need to define the population. Defining a population implies understanding what the elements are that form it and about whom the researcher is looking for information. This might be relatively straightforward in a small country where you want to run a household survey to find out if the head of the household is in employment or not. Here the basic "unit of study" is the household and all

households are probably reachable. However, in research using participatory methods, defining basic units of study is not always easy and the complexity of the issues means that more than one type of study unit may be needed.

3.3.3 Structure

Study units do not sit in a homogeneous background isolated from each other. It is possible to identify "structures" of study units, which are useful for designing sensible sampling schemes. Two types of structure can be easily identified:

- The first is hierarchical. These are vertical relationships where one unit at a higher level is made up of several units at lower levels in the hierarchy. For example, individuals are found within households and households within villages.

In surveys, the use of hierarchical (or multi-stage[23]) sampling is common practice. For example, a sample of districts might be drawn from all districts in the country; from within each of the selected districts a sample of villages might be taken; and from within each of the selected villages, information might be collected from a sample of households. At each of these levels, the elements are called "sampling units". However, often the only sampling unit that is a "unit of study" is the one at the bottom level of the hierarchy. The unit of study in an income and expenditure survey would be the household, even if – in the selection of the households – the researcher went through a process of selecting regions, then districts and then areas within districts.

There is no reason not to use a similar approach when selecting sites for research using participatory methods. However, with this type of research, the objectives often require information collection at several levels of the hierarchy. For instance information might be required at district, village and household level. Elements at each of these levels would then be regarded as units of study.

- The second type of structure is at the same level of the hierarchy, such as classifications of units according to specific characteristics that are of importance for the research. For example, villages can be classified according to the agro-ecological zone in which they are located. Households can be classified into male- and female-headed, or by poverty levels, food security status, or whether they have been affected by an intervention like Starter Pack/TIP. This type of classification can be used for stratification.

In statistics, stratification means forming groups (strata) of study units in such a way that the units within one group are as similar as possible while the units in one group are as different as possible to the units in

[23] For a discussion about multi-stage sampling see De Vaus (1996), Barnett (1991), Cochran (1977). The mathematical content of these discussions increases from De Vaus to Cochran.

another group.[24] It makes sense to use stratification when the criterion used to form strata is believed to have an effect on the issues of research interest (one could think of stratification as further refining the definition of the study population). In theory, stratification brings two advantages:

1. results and generalisations can be made specifically for the stratum if the sample size within the stratum is sufficiently large; and
2. the variability in the overall results will be decreased by having removed between-strata variability at the design stage.

3.3.4 Sampling strategy

Recognising the structure of the units of study in our Malawi research helped us in deciding on the integration of statistical and participatory approaches. One strategy that worked well when our units of study were the village and the household was to use statistical sampling in the hierarchy down to the level of village and participatory methods, including community mapping with cards, for collecting information at village and household levels (see Barahona and Levy 2002).

In order to draw a sample, the researcher needs a sampling frame. A sampling frame is a complete list of all the members of the population. If such a list is available and up-to-date, the researcher is able to claim that in choosing the sample from the list, all members of the population are given a chance of selection. Moreover, the researcher should be able to work out the probability of selection for each member of the population. In Malawi, we had a sampling frame for districts, areas and villages in the form of the SPLU and TIPLU registers (see Section 2.1), so we were able to sample at these levels using probability-based methods of selection.

However, we did not have a sampling frame for smallholder farm households. The traditional survey mechanism for constructing the sampling frame involves visiting all households in the area, writing a number over the door of the main dwelling of the household and then listing all the households.

This formal approach to sampling frame construction is possible if the limits of the village are clearly defined and a definition of household is available and unambiguous.[25] However, in many development settings these two conditions are not easy to fulfil. For example, in Malawi, villages are in constant change: they grow and shrink depending on seasonality and whether there is a food crisis;[26] they merge or split up according to the dynamics of the local power structures; and in some cases villages do not "officially exist" although they are to be found in the field.

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[24] Sometimes "stratification" is based not on these principles but is used instead because grouping units seems necessary from a practical point of view. In these cases, stratification does not have the advantages described in this section.

[25] National statistical offices often use census enumeration areas to define the areas and official definitions for the identification of households (see Section 2.1).

[26] As the situation becomes more difficult, poorer households tend to merge in an effort to pool resources. Another strategy is to send children to live with relatives.

Under these circumstances the construction of a sampling frame of households by someone who does not live in the village is a difficult task. Community mapping can be an efficient way of solving the problem.[27] By involving the community in the definition of the limits of the village and the identification of households it is possible to construct useful and reliable sampling frames.[28]

Community mapping is not merely an efficient means of generating a list of households. Important numerical data can be obtained from activities based on mapping with cards (see Section 2.2). However, from a statistical point of view, community mapping with cards has particular significance because it can be used to identify characteristics of each household that allow the researcher to:

1. stratify households into different groups of interest to the study, e.g. wealth/poverty groups or food security status groups;
2. find out the size of each stratum within the community; and
3. interview households selected at random from among the cards, either for the village as a whole or for strata within it.

In the Consultations with the Poor on Safety Nets and TIP Messages studies (Section 2.2), cards were made for every household on the map and the data collected are a complete enumeration of households in the village based on participatory methods. This approach avoided sampling – and therefore sampling error – within the village. This works for information that is relatively simple and known by others in the community (e.g. gender of household head, household food security status). However, if we wanted more complex information about households – e.g. meals eaten by each household member in the last three days – it would be necessary to conduct individual interviews. In this case, we could have used the participatory mapping with cards as a sampling frame, selecting a number of households at random within the whole community or within specific strata (such as FS, FI and EFI) for in-depth interviews.

If any of the selected individuals or households refused to participate there would be no reduction in sample size because a replacement could be obtained through the same selection process. An advantage is that in such cases of "non-response" there is the potential to gain further information: the reasons for refusal may offer interesting insights. If interviewees are selected from volunteers, these opportunities may be lost.

3.3.4.1 Voluntary versus random group formation

Given that we have the means to select at random within the community, in this section we address the issue of whether participants in group discussions should be voluntary or selected at random. In the cases presented in Part 2, those doing the mapping and providing the information on the cards (the

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27 There are some situations in which community mapping may not be possible and alternative solutions need to be found. See Barahona and Levy (2002) and Wilson (2002).

28 Over the last decade, community mapping has been used to construct sampling frames for surveys by some researchers. For a discussion, see Marsland (2001).

participants) were not randomly selected but took part on a voluntary basis. Does this undermine the statistical validity of the outcome? From a participation point of view, random selection of participants makes little or no sense. Here, we argue that random selection of participants is not necessary for the generation of useful numbers.

In traditional survey methods, for instance in household surveys, the selection of households is based on probability sampling. It is a common approach in surveys that whatever the restrictions imposed in the selection of units at the top of the hierarchy, the selection of the study units at the bottom of the hierarchy is at random. However, once the enumerator reaches the household, the survey protocol indicates who in the household should be interviewed. The selection of the respondent within the household is not at random. It would be silly to choose a three year-old child to ask him/her questions about health issues and provision of services. The choice of respondent is made on the basis of who in the household can provide complete and reliable information about the study unit. This is often the household head, but it is not uncommon to find that a questionnaire has modules that apply to different members of the household and these members are clearly defined in the protocol.

A parallel can be drawn for research using participatory methods. In our Malawi studies, the information that we were interested in could be provided in an unbiased way by key informants or groups of key informants. In such cases, it is unnecessary to select group participants at random. Rather participation should be voluntary, and people who are "knowledgeable" about matters of interest to the study should be encouraged to attend. This is the case when:

1. Participatory methods are used to discuss issues relating to the characteristics or properties of communities – or strata within them. For instance, a resource map, an institutional diagram or a transect walk collects and discusses information about the community.
2. The focus of interest is information about households, but *is common knowledge within the community* (as in Section 2.2).

We believe that the information of interest to research studies using participatory methods is often about the community (1 above) or about households but common knowledge within the community (2 above). In these cases, the fact that participants are volunteers does not affect the validity of the information. The participants act as knowledgeable key informants about the community or households within it in the same way as a knowledgeable member of the household provides information about the household and its members in a traditional survey. The only problem would be if the study asked voluntary participants to provide information about *themselves* and then presented this information as if it were representative of all members of the community or relevant strata within it.

3.4 Sample size

What sample size is required to ensure that the study results can be relied upon to make generalisations? This is a difficult question to answer because the reply depends on a number of complex factors. The elements to be considered when deciding on sample size are the focus of this section.

Before starting the discussion, we feel that there is a question that requires a straight answer: 'Can statistics provide a formula that will give the correct sample size for a study that uses participatory methods to collect information?'. The short answer is that statistics does not have such a formula. The reason for this is that statistical theory deals mainly with making inferences about the numerical characteristics of a population. If a sample size calculation is to be made, it is done for one characteristic at a time. This is not helpful for our problem of deciding how big a sample is needed when we are interested in researching the type of complex issues usually addressed through participatory methods.

3.4.1 Precision and variability

Although statistics does not provide a formula, understanding the principles underlying sample size calculation can be useful for our objectives. At a basic level, there are two statistical concepts that affect the decision on sample size for the estimation of a numerical characteristic of a population:

1. how *precise* do we need to be in estimating that characteristic; and
2. how *variable* is the population with respect to the characteristic of interest.[29]

The more variable the characteristic of interest, the larger the sample that is needed to achieve the required level of precision.[30]

3.4.2 Population size is irrelevant

A common misunderstanding when choosing a sample size is that one needs to take into account the size of the population, i.e. the study of a larger population requires a larger sample size. This is not correct. From an estimation point of view, the choice of sample size is not made as a fixed proportion of the population. Rather, it is guided by two main criteria: the required level of precision for the estimate and how variable is the population with respect to the characteristic of interest.

3.4.3 Other factors

How do we choose a sample size in practice? Apart from the criteria of precision and population variability, there are other factors that affect our choice. Among these are the structure of the units of

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[29] The overall variability can be split into variability that can be explained by known factors (e.g. geography, proximity to a trading centre, etc) and random variability. It is the random, unexplained variability that is important in the calculation of sample size.

[30] For a full explanation, see Barahona and Levy (2002).

study, the level of aggregation at which the results are to be presented and the resources available for collecting the information.[31] The final decision should be based on a trade-off amongst all these elements.

The decision about the sample size is never easy. One of a series of best practice guidelines commissioned by DFID and published by the Statistical Services Centre at The University of Reading observes that:

> Making your own sampling decisions based on careful thought and detailed planning is a positive challenge: dialogue with some people experienced in sampling issues is often a great help to ensure the proposal covers all the necessary issues in a sensible way, and we would advocate that at least one of them should be a sympathetic statistician. Even if experience shows you that your solution is less than perfect, you can take comfort from knowing the alternative is worse: adopting pre-packaged solutions and standard plans without thought would probably be a recipe only for disaster!
>
> (SSC 2001)

In the case of the Malawi studies using participatory methods, we worked with no less than 20 villages throughout the country and up to 48 in one case. Twenty villages was the minimum number that we were prepared to work with. In the TIP Message study (see Section 2.2.3), 21 villages were visited and information was collected from a sample of 1,343 households. We would have felt happier working with 30–40 villages in all cases, but in practice resource constraints did not always make this possible. A sample of 40 villages would have given us a sample of some 2,500 households.

3.5 Adapting PRA tools

In previous sections, we have discussed some of the basic statistical principles that can be used when designing research studies that generate statistics using participatory methods. We would argue that there is no need to compromise the first and second components of PRA that we referred to in Section 3.1, or to adapt the three basic statistical principles. However, we do need to adapt the PRA tools to satisfy the requirements of collecting information from multiple sites.

This section deals with adapting PRA tools for the generation of numbers. In particular, we look at the issues of standardisation and comparability.

3.5.1 Standardisation

The main differences between traditional PRA approaches and research using participatory methods are that in the latter case (a) we need to work in a fairly large number of sites, (b) the researcher/facilitator has

[31] For a full discussion, see Barahona and Levy (2002).

a clear purpose of acquiring data for informing policy, and (c) the impact of participation will go beyond the local setting. As a result, standardisation of PRA tools is needed so that consistent results are produced. This means that across all sites:

1. The tools should be used in the same manner.
2. The same type of information with the same level of detail should be collected.

The first condition implies the development of a Field Manual that specifies in detail the tools to be used and the steps to be followed for each activity throughout the period that the research team interacts with the community in each site. In addition, we standardise the "human element" as much as possible by careful training of field teams (see Section 3.6.3). It should be emphasised that in order to standardise the tools and produce the Field Manual, a preliminary design phase is required. It is not possible to develop standardised PRA tools sitting in an office. Consultation with stakeholders at community level as well as testing of different approaches are essential for the development of the PRA tools.[32]

The second condition is fulfilled by the use of a unique instrument for recording the information acquired in each site. We call it a 'Debriefing Document'. This complements the Field Manual by providing the framework for recording the information with the same level of detail across all sites.

We should stress that although our emphasis is on the information that can be integrated across sites for the purpose of making generalisations, there is a wealth of context-bound information that comes from the use of PRA tools, of benefit for local stakeholders as well as the researchers. This plays an important part in the processes of learning and sharing. We believe that the ideas presented here "add to" rather than "take away from" the demonstrated potential of participatory methods. We assume that researchers interested in participatory methods practice principles of participation such as reversal of learning, offsetting biases, optimising trade-offs, triangulating, seeking diversity, "handing over the stick", self-critical awareness, personal responsibility and sharing (Chambers 1994a). In terms of recording information, particularly non-standardised information, the researcher's skill in using a notebook remains an irreplaceable asset.

Although we are making a case for standardisation, it is important to note that we are not proposing to remove the flexibility of PRA tools. Standardisation should apply to the process of collecting and recording key pieces of information that are needed to fulfil the research objectives. When adapting the PRA tools, the challenge lies in identifying those aspects that require researcher control while retaining as much of the flexibility of the methods as possible.

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[32] See Cromwell (2000) for an example of how indicators were decided upon through consultations with communities in the preliminary phase of the study.

3.5.2 Comparability

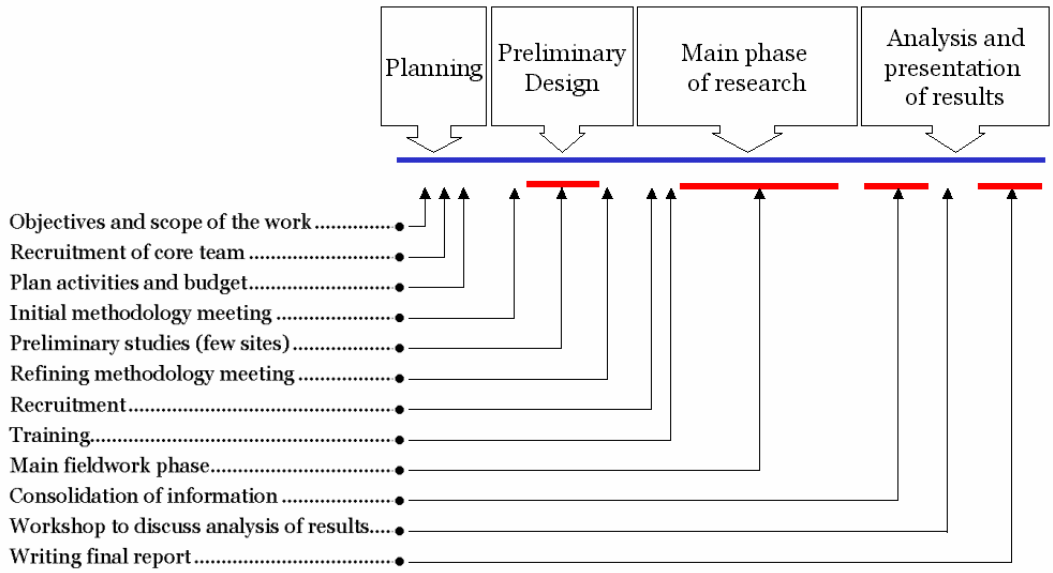
In Section 2.2.3, we examined how Module 2 of the 2001–02 TIP evaluation adapted the approach used in Module 4 of the 2000–01 TIP evaluation to ensure comparability of information collected between sites. Ensuring comparability means using the same time periods, definitions, indicators, etc in all sites, and using absolute rather than locally referenced, relative measurements. This frequently means alterations to the methodology, but it is essential if we are to aggregate the results. In our experience, it is usually possible to adapt PRA tools for this purpose. See Barahona and Levy (2002) for further examples involving trend analysis and scoring versus ranking.

3.6 Planning, organisation and cost

We have argued that in order to produce generalisable results, including numerical data, the researcher needs to work in a relatively large number of sites and adapt the PRA tools to ensure standardisation and comparability across sites. This section looks at the planning, organisation and cost implications of these requirements. We draw on the lessons of the Malawi studies presented in Part 2. Our discussion reflects the consecutive stages of the process, as shown in Figure 3.2.[33]

It is important that each stage be properly thought out. In particular, we give considerable weight to the preliminary design stage. This is intended to make sure that the approach is tried and tested before it is applied in a standardised manner across a relatively large number of sites.

Figure 3.2 Stages and activities



[33] This figure shows the process followed in the 1999–2002 Malawi studies. For the forthcoming Guidelines and a Code of Conduct of the Parti Numbers group (see Resources), we have modified it to incorporate stages which *should* be included but were not in our case – in particular analysis of numerical data with local community participants (see Section 4.1).

3.6.1 Planning

The main activities of the planning stage are:

1. Deciding the objectives and scope of the work;
2. Recruitment of the core research team;
3. Producing an overall plan of activities and budget.

First, it is essential to clearly define the objectives and scope of the research exercise. In particular, those initiating or commissioning the study should:

- agree on what is the population of interest;
- determine the nature of the information to be collected and who should provide this information;
- examine the structure of the information separating what the study needs to find out from the information that is already available;
- consider what research methods will be most appropriate (e.g. a survey, participatory methods, semi-structured interviews with key informants) and, if participatory methods are involved, what sort of tools will be used; and
- establish what are the resource requirements: staff, time and money.

The remainder of Section 3.6 assumes that the research methods used will be similar to those of our Malawi evaluation studies which used participatory methods.

Once the objectives and scope of the work have been agreed, a core research team should be identified. This team will be responsible for producing an overall plan of activities and budget and for the subsequent stages of the work, including heading the field teams, analysing the information collected in the field and writing the final report. The team members must be good facilitators; they should have good critical analysis skills; they should have field experience; and they must be willing to work in difficult conditions. At least one member of the team should have project management skills, including the ability to coordinate a large team and to implement a budget. One or more of the team members must have good writing skills and be capable of pulling together the findings into a final report.

Once the core team has been recruited and has appropriated the objectives and scope of the work, its first task is to draw up an overall plan of activities and budget. These should focus clearly on meeting the study objectives and ensuring that the outputs are delivered within the time and resources available.

3.6.2 Preliminary design

The preliminary design stage should comprise an initial methodology meeting, preliminary studies in a small number of sites (three to five[34]) and another meeting – after the preliminary studies – to refine the methodology. This stage should take two to three weeks. By the time it is finished the methodology for the study – including the PRA tools – will have been completely defined and a Field Manual and Debriefing Document will have been prepared. The Field Manual will contain a programme of activities to be carried out in each site and detailed instructions for each activity, so that the work can be carried out in the same way in each site, while the Debriefing Document will enable researchers to record key findings, including numerical data, in the same way in every site.

The product of the initial methodology meeting – a workshop involving all core team members (and possibly other stakeholders) – should be agreement on what tools will be used to collect each piece of information required for the study objectives. Each proposed tool should be discussed in detail so that the meeting agrees when, how, and with whom they will be used. These guidelines should be written down as a draft Field Manual for use in the preliminary studies in a small number of sites. If there is doubt or disagreement about the best method of collecting the information, alternative methods should be included. The draft Field Manual should include a "programme of activities" for each site, which recommends the order in which the activities should be tested; however, at this stage, sequencing remains flexible and it may be desirable to test different sequences of activities.

The preliminary studies in a few sites should be carried out soon after the initial methodology meeting by the core team members, working in groups of two or three. The main aim of the preliminary studies is not so much to collect information as to test the proposed tools. Inventiveness and improvisation should be encouraged at this stage. The researchers need to be sure, when they come back from the field, that the tools will work well – if necessary after some modifications – in the main fieldwork phase. Additional objectives are to consult communities about definitions, indicators etc.; to think about how best to record the information from each participatory session; and to observe whether the researchers have the right skills for conducting the study and are working well together.[35]

The purpose of the meeting for refining the methodology (immediately after the core researchers' return from the field) is to make the necessary modifications. The core team members should discuss their experience in the field in order to improve the tools and sequencing of activities for the main fieldwork phase. In particular, they should discuss which part of the methodology worked and which did not, and whether they came up with any creative solutions to problems encountered. The meeting should also sketch an initial plan of analysis of the information that will be produced in order to be sure that all the

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[34] The number depends on the diversity of situations that the researchers expect to find in the main fieldwork phase. The sites may reflect different strata or conditions likely to be encountered. They may be selected purposively or at random within strata.

[35] If it becomes apparent during the preliminary design stage that any or all of the core research team are not making a positive contribution to the study, it will be necessary to replace them because in the main phase, if any team produces sub-standard results, the information from that team's sites may have to be abandoned.

information to be collected in the main fieldwork phase will be relevant and nothing will be missing. Once all refinements have been agreed, the team will produce the final Field Manual (including the final programme of activities for each site) and a Debriefing Document. By this point, the approach has been standardised for the main phase of fieldwork.

3.6.3 Main fieldwork phase

This stage comprises recruitment and training of research assistants and carrying out the main phase of field research in a relatively large number of sites.

Recruitment of research assistants is desirable in order to reduce the amount of time and resources spent on fieldwork. This is particularly important if the study is working in a large number of sites. For our purposes, we found that field teams made up of one core researcher and three research assistants were ideal, as these could be split into two teams of "facilitator + note taker" if we wanted to run two activities at the same time – e.g. two focus group discussions in parallel.

The key considerations when recruiting research assistants are that they have good facilitation and note-taking skills and enthusiasm for the work. Languages, age and gender may also be important factors – depending on the context that the study will be working in. Once they have been recruited, the research assistants must be fully trained so that they understand the objectives of the study, the use of the Field Manual, facilitation and note taking and how to complete the Debriefing Document. The training should emphasise the principles of participation, in particular behaviour and attitudes and sharing of information.

Thorough training is essential when teams are to work in a large number of sites because the "human element" needs to be standardised as much as possible. In other words, the teams should use the tools in the same way in different sites and different teams should use them in the same way. If, for example, a tool depends on a definition such as food insecurity, the definition must be conveyed in the same way to communities in the sites visited by Teams 1, 2, 3 and 4. If Team 3 were to misunderstand the Field Manual and define food insecurity differently from Teams 1, 2 and 4, the information collected by Team 3 would not be comparable with that of the other teams. For this reason, all the core researchers who will lead the teams in the field must be present throughout the training.

Immediately after training, the teams should depart for the field. If the preliminary design and training have been carefully carried out, the main fieldwork phase should be straightforward and enjoyable. In our experience, the main problems that may be encountered are difficulty in accessing a site and the occasional refusal by a community or group to take part in the research. In both cases it is important to document the reasons for these "non-responses".[36]

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[36] In cases of extreme difficulty of access to a site, we have followed a policy of replacing the site using the same selection method as for the original site. However, replacements should be kept to a minimum, as they introduce bias. Remoteness is not acceptable as a reason for replacing a site: if all remote sites were replaced by sites close to roads this would introduce severe bias.

3.6.4 Analysis and presentation of results

The analysis of information from the main fieldwork phase is based on the Debriefing Documents – which carry the key numerical data, drawings, diagrams and summaries of text findings for each site – supplemented by insights from the researchers' notebooks. We find it useful to begin by asking each team leader (the core team member in each field team) to consolidate the qualitative information from his/her sites and present the main findings to other core team members at a workshop. Following the team leaders' presentations, the structure of the final report should be agreed and a plan of analysis for the numerical data discussed. After the workshop, each team leader will continue to consolidate the information from his/her sites, and to refer any queries to the research assistants. The numerical data from the Debriefing Documents will also need to be processed at this point (see Section 3.7.1).

The core team then needs to consolidate the information about each topic from all sites. This may be done by asking each core team member to take a topic and integrate the findings from his/her sites with the findings from the other teams' sites.

Once the "qualitative" findings have been summarised by topic and integrated with the analysis of the numerical data for that topic, the final report can be written. The report should have appendices containing the list of villages visited by the study and their location, the Field Manual and the Debriefing Document. The core researchers may share the writing up of the final report or it may be the responsibility of only one or two of the core team members. In either case, it is vital that all of the core team members read the draft of the report critically to ensure that their findings are reflected in the report, and that it does not give undue weight to the sites visited by the person(s) who have done the writing up.

3.6.5 Cost considerations

It is often argued that the cost of carrying out participatory studies in a large number of sites is prohibitive. Costs vary enormously depending on the cost structure of the organisation carrying out the study and the conditions in the country where the study is carried out. However, in our experience good planning, organisation and financial management make it possible to carry out research using participatory methods in a relatively large number of sites at a reasonable cost (see Barahona and Levy 2002).

3.7 Data analysis

3.7.1 Data management

An information collection exercise of the size described in this paper places data management demands on the research team. Systems need to be put in place to ensure that the data[37] are managed in such a way that all the information is kept safely, completely and accessibly. This includes hard-copy and electronic versions.

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[37] The Oxford English Dictionary defines datum (singular of data) as '. . . something known or assumed as fact; and made the basis of reasoning or calculation'. We take the definition in its wider sense so as to include not only numerical information but all the information that is collected through the process of research.

The first and primary deposits of information for our studies are the Debriefing Documents and notebooks. The Debriefing Documents contain concentrated data about the key issues of interest, collected using standardised tools, recorded in a uniform format and completed *in situ*. The researcher's notebooks keep more detailed information in a free format.

In our studies, the Debriefing Documents, notebooks, maps, household cards and other products of the fieldwork are gathered together after the teams return from the field and kept safely by the core team members. In the studies presented in Section 2.2, part of the information contained in the Debriefing Documents and the data on the household cards was computerised to help the task of statistical analysis. When data are transferred from paper to computer it is important that the information is complete and that checks are made to ensure that the electronic copy is a faithful transcription of the originals.

The choice of software for data management depends on the resources available to the research team. Availability of software and experience in the use of specific packages varies from team to team. We have used simple spreadsheets and complex database systems with custom-made facilities for data entry, filtering and retrieval of data. Whatever software is chosen a special effort must be made to avoid errors of transcription: much effort and resources will have been invested in collecting the data, and it would be a pity to enter wrong information onto the computer. The importance of periodical backups should also be stressed. We recommend keeping two backups: one in the office and one away from the office.[38]

We have scanned all the Debriefing Documents and community maps from the Malawi studies. They are available on a CD-ROM (see Resources), together with the reports and the data.

3.7.2 Statistical analysis

The first condition for any dataset to be suitable for statistical analysis is that it can be trusted. Trust comes from the process of data collection and data management. In our experience there is no perfect dataset. Therefore, a data quality assessment helps to establish trust in the information. Such a quality assessment should point out areas where problems have been found and describe the solutions given, identifying areas where the user should be cautious while interpreting the information. It should describe any actions taken by the research team to deal with problems such as replacement of study units, refusals or special circumstances found in the field.[39]

We believe that if the design of research using participatory methods takes into account the elements discussed in this paper, the numerical data generated will be suitable for standard statistical analysis. The same considerations apply here as for the analysis of studies that do not use participatory methods, and the same potential for making generalisations exists. There may be an issue of sample size, as for some study units the sample may not be large enough. But this is no different from studies using other methods, and it can be discovered and dealt with at the design stage.

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38 See Resources (at the end of this paper) for guidelines on data management.

39 The methodology chapters of our studies contain details of such problems and solutions.

The type of statistical analysis that is carried out on the data depends on the type of data and the objectives of the study, not on the tools used to collect the information (participatory or otherwise). However, in studies using participatory methods, the researcher has the advantage of having access to narratives from notebooks and Debriefing Documents that help to explain the results from any statistical analysis.

As with any statistical analysis, the first stage in processing the information should be exploratory. The use of simple descriptive statistics: average, minimum, maximum, median, standard deviation for continuous data, or frequencies and tabulations for categorical data, are recommended. More complex statistical methods of analysis may be required, but no researcher should jump straight into the deep end of the statistical methods pool. Like any other area of speciality, statistics offers tools that can yield great benefits if used appropriately, but can lead to wrong results if used without appropriate knowledge. As a rule of thumb, if a statistical analysis is getting you confused and detached from the information, stop and re-think. In these cases you have two options: abandon the use of such analysis, or seek help from a "friendly" statistician who can advise on the use and interpretation of the analysis.

Statistical data processing almost inevitably leads to loss of detail as information from different sites is aggregated, but gives the advantage of allowing generalisations. An advantage of using participatory methods in research is that the non-numerical, in-depth information can be incorporated into the analysis.[40] Researchers should be able to establish clear, credible links between the qualitative and the quantitative information in their final analysis.

3.7.3 Scaling up

How do you scale up study results? If you ask a statistician this question, he/she will think about weighting the results so that they apply to the full population. The derivation of weights depends on the sampling design.[41] Information is not always available to construct useful weights. In such cases, the statistician might decide to use secondary sources to help in the task of deriving weights, or decide that no weighting would be preferable to using incorrect weights. For an example of how one process of scaling up was done, see Section 2.1 and Wingfield Digby (2000).

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[40] Here we use analysis in the more general sense as the process of reasoning that enables learning. This includes the results from the "statistical analysis" or statistical processing.

[41] If the sample is self-weighting, there is no need for the application of weights.

Part 4 Challenges for the future

4.1 Empowerment

The research using participatory methods discussed in this paper is designed to produce results at area, district, regional or national levels. It can be used to empower stakeholders at these levels – from NGOs and members of civil society to local and regional officials and national policy-makers. This is, in our view, a very important function, and one that is often neglected: empowerment should not only involve local communities, but those whose decisions on a higher level of aggregation affect the lives of people in communities spread across large areas.

However, research using participatory methods is generally weak on local-level empowerment. Unlike the participatory work that aims to empower local groups or communities, research using participatory methods does not usually focus on a local development outcome as a primary objective. As a result, it often fails to feed information back to decision-makers and other stakeholders in the communities where the research is carried out. In our Malawi studies, for example, the data generated by the research was processed by the researchers on return to base, and the analysis was not shared with the communities which produced it.

We believe that – while the focus of research using participatory methods will continue to be at the higher level – there is potential to develop techniques for sharing results with the communities that take part in the studies. The initial data analysis could be done with the participants while in the field. For example, community-level tables comparing food security status and receipt of an intervention like TIP (see Section 2.2.3) could be produced *in situ* from the community mapping with cards and discussed with the community.

However, our experience suggests that if the issues are of a sensitive nature (like Starter Pack/TIP), care is likely to be needed when making feedback to local communities. This is important mainly because if sites are selected at random, many of them may be in places where there are no social programmes or NGOs. There would be no follow-up once the research programme had finished, and the researchers would not be in a position to mediate any conflicts that were produced.

Thus, empowerment is an area which has considerable potential in relation to research using participatory methods, but a sensitive approach is required. Work is needed to develop guidelines about what sort of numerical data might be fed back into communities, how it should be done, and what sort of local empowerment outcomes might be expected to come from it.[42]

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[42] An initial exploration of these issues and those in Section 4.2 is contained in the forthcoming Guidelines and a Code of Conduct of the Parti Numbers group (see Resources).

4.2 Ethical issues

In this section, we discuss some of the ethical issues that have arisen in connection with our research in Malawi. Most of these are questions to which we do not have clear answers. We restrict the discussion to those ethical issues most closely related to research using participatory methods (as distinct from other types of participation). Unlike survey research – for which there are established ethical procedures – this is an area in which the ethical rules are not clear and need to be developed.

4.2.1 Ignoring the evidence

Should the researcher collect data for bodies (national, regional or local) that have no commitment to using the evidence as a basis for policy-making? The process described in this paper requires an intensive use of resources, not least in terms of time spent by the members of communities who take part in the studies. While community-led participatory studies are designed to feed back into local communities or groups within them by empowering them to make improvements, research using participatory methods that aims to influence policy at a higher level will only impact positively on the lives of the participants if policy-makers use them to reduce poverty, increase livelihood opportunities or otherwise benefit the target populations. We should not ask communities (or groups within them) to spend time on research if we do not believe that the policy-makers will take the findings seriously.

By introducing statistical principles that make the data collected representative of a population of interest and by making the research process a rigorous, well-organised one, we argue that it is more likely that policy-makers will believe in the findings of research using participatory methods and act on them. However, important factors such as party politics, office politics, personal interest or budget limitations may outweigh the evidence. In such cases, we believe that research using participatory methods should be avoided, as it will raise expectations that will not be fulfilled.

In cases where governments at national, regional or local levels are themselves undertaking or commissioning research using participatory methods, we believe that there should be a commitment beforehand to take the results seriously and act upon them (see Section 1.1). Otherwise, resources will be wasted and participants' expectations disappointed.

4.2.2 Transparency and consent

We believe that it is important not to hide information from the communities in which we work. At the outset, the teams make the general purpose of the visit clear to the Village Head and potential participants at an open village meeting and seek their consent for carrying out the research.

However, we do not always disclose our whole agenda at once. For instance, we have often opted to talk about general livelihoods, problems, food security, etc. before specifically discussing Starter Pack/TIP. This is partly because free inputs are such an emotive issue in Malawi that once they are mentioned it is almost impossible to channel the discussion in any other direction; it is also partly because we often want participants' responses not to be influenced by what they think we should hear or will want

to hear in relation to the free inputs programme. Therefore we intentionally avoid mentioning Starter Pack/TIP until we have covered topics that may be adversely affected, disclosing information in a pre-arranged sequence.

Box 4.1 What is the benefit for the communities?

In the Malawi studies, when the researchers using participatory methods introduced themselves to the communities, they explained that they wanted to find out about how people lived and what were their problems with the intention of transmitting this information to policy-makers so that they could make changes for the better. People tended to interpret this as meaning changes to Starter Pack/TIP, as this was such an important food security issue. They were happy to participate in the research on this basis. However, in 2000–01 when some of the same villages were visited as in 1999–2000,[43] people complained that nothing had changed for the better – in fact the programme had been scaled down from nearly 3 million to 1.5 million packs.

The ethical question here is whether it is right to restrict information flow to participants at any stage in the process. Medical trials have established procedures for what is and is not acceptable in this respect, but practitioners of participation generally favour complete openness. In the Chinsinga (2001, 2002) studies, the information on the cards was deliberately coded during the mapping so that participants in subsequent group discussions would not be confronted with information that might bias their responses. We used codes which only the researchers understood – i.e. we "blinded" the participants to key bits of information on the cards. Chinsinga (2002) used codes 1 and 2 for TIP Status (TS), 3, 4 and 5 for Food Security Status (FSS) and 6 onwards for different eligibility criteria identified by the Village Task Force, the beneficiaries and the non-beneficiaries (see Section 2.2.3).

This system worked well and produced reliable statistics. However, in one of the SSC's 'Dealing with Data from Participatory Studies' workshops,[44] a participant asked about the community mapping with cards, 'Is the card game participatory if it has so much to hide?'. We feel that the answer to this question is unclear. Some participatory practitioners will feel that our procedure is not open enough. If it is felt that the principle of openness should not be sacrificed, it may not be possible to collect certain types of sensitive information.

A possible compromise – which we call the "contract system" – might be to collect the information by keeping some participants blind to information provided by others, for example by using codes, and then feed back the results so that participants can learn from them. This would based on a "contract" whereby participants agree to "play the game" first, with some elements unexplained; and facilitators agree

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43 This was done by a case-study based module – Van Donge (2001) – that purposefully selected villages that had been visited the previous year.

44 Statistical Services Centre, The University of Reading, 2–13 September 2002.

to "reveal all" at the end. This process could be iterative, in that participants might then want to "correct" some of the information given in the light of the full picture. They would be allowed to do so, and both initial and final positions would be recorded.

4.2.3 Flexibility

Participatory work is highly flexible where the agenda is determined by the local community or groups within it and the objective is one of local empowerment or development. By contrast, research using participatory methods is highly structured: research objectives are fixed and information collection techniques, including certain assumptions, definitions and indicators, are standardised in the main fieldwork phase (see Section 3.5.1). Some would argue that this approach is incompatible with the principles of participation, which requires flexibility of discussion. However, we believe that our approach is compatible with participatory principles if the following conditions are met:

- standardisation in the main fieldwork phase is based on consultation with the communities in the preliminary design phase;
- we fix the elements that we know about in advance, but leave as flexible as possible the unknown elements – the issues to be discussed; and
- although the activities and information collection tools are standardised and certain information needs to be recorded in every site, discussion is not limited – the facilitators should allow participants to develop the discussion in a way which deals with their concerns as well as those of the researchers.
- the main principles of participation are embraced.

4.2.4 Sharing information

In the short term, research using participatory methods takes more from the communities that participate in the research than it gives back to them. We are transparent about the objectives of the research (e.g. to inform policy at national level), and it is on the basis of this "informed consent" that people are asked to participate at the start of work in each site. Nevertheless, it is a matter of concern that there is little immediate benefit for participants' communities.

One possible improvement would be to include a commitment to information-sharing as part of the terms of reference of research studies using participatory methods. This would have the aim of facilitating learning as part of the research process. Exactly what information would be shared would depend on the nature of the study. A study looking at use of the free inputs might incorporate as part of its objectives a discussion of how to plant the seed and apply the fertiliser in order to get the most from the inputs. This would imply bringing in agronomic expertise during the training for the main fieldwork phase.

4.2.5 Confidentiality

A final area of concern with research based on participatory methods is that of confidentiality.[45] In survey work, clear rules have been established to ensure that confidentiality of responses is honoured, including requirements to aggregate responses to the level where no individual respondent can be identified. However, participatory approaches are open about who provided the information and encourage acknowledgement of sources. This is because the information is normally collected for the use of the community that provided it and the discussions are open to all participants. Thus, confidentiality is not an issue. However, for research using participatory methods, where the end-user is outside the local community, confidentiality is an important consideration. It is conceivable that information might be given by Village A or by Participant B that might make them unpopular with the authorities or other stakeholders. If the source of information were to be made public, Village A or Participant B might be victimised. This is an area which, in our view, requires urgent debate, and on which we have contributed to the forthcoming Parti Numbers Group's Guidelines and Code of Conduct (see Resources).

Part 5 Conclusion

This paper sets out to show that it is possible to generate statistics which will be taken seriously by policy-makers using participatory methods in research. We have argued that in order to achieve this objective, it is necessary for research using participatory methods to produce results from a "representative" sample, which can be generalised in order to reach conclusions for the population of interest. This is usually seen as characteristic of research using surveys, but there is no reason why it should not be possible for research using participatory methods. Indeed, our Malawi experience shows that it is possible. The studies presented in this paper show how we generated:

1. population estimates;
2. estimates of the proportion of people in a population with certain characteristics, e.g. the very poor/extremely food insecure, or those benefiting from an intervention;
3. estimates of the proportion of people in a population who should be targeted by an intervention (the "right" level of targeting); and
4. comparisons between places, including variability.

The approach described here combines two elements to achieve this result:

First Statistical principles are employed in the design of the research, including the selection of the sample of communities in which the research will be carried out, and, if necessary, of samples within the communities.

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[45] According to De Vaus (1996), 'Confidentiality simply means that the researcher can match names with responses but ensures that no-one else will have access to them'.

Second The PRA tools are adapted through a process of standardisation, based on careful planning and organisation of fieldwork, taking into account the requirements of comparability of data between sites.

We have argued that if the design of research studies using participatory methods follows this approach, the numerical data generated will be suitable for standard statistical analysis, including scaling up of results. A key characteristic of the approach is that research teams need to work in a relatively large number of sites compared with traditional participatory studies.

The statistics produced by such studies should be capable of informing policy at national level. While the action research tradition focuses on stimulating action 'in the pursuit of worthwhile human purposes' at community level, our focus is on enabling policy-makers to undertake actions that will have a positive impact on development and poverty reduction. However, in order to be successful, the powerful stakeholders *must* seriously commit to acting on the information generated and to doing so in a way which is likely to benefit the least powerful participants.

We have pointed out that the choice between surveys and participatory methods in research depends on the type of information (including the numerical data) which the researcher needs to collect, in particular the level of complexity. Research using participatory methods should by no means replace survey work. Rather, we argue that the two approaches are complementary.

Finally, we have raised some concerns about empowerment and ethical issues, which present challenges for the future. Are the fundamental principles of participation undermined by the modifications that we need to make if we are to generate data for use beyond the local level? Does research for end-users outside the community imply a need to seek commitments from such end-users about the use of the information and to introduce new safeguards for participants? Work has already begun on producing Guidelines and a Code of Conduct for this type of research.

Bibliography

* References marked with an asterisk belong to the Malawi Starter Pack and TIP monitoring and evaluation archive (see Resources below).

Abeyasekera, S., Ritchie, J.M. and Lawson-McDowall, J., 2002, 'Combining ranks and scores to determine farmers' preferences for bean varieties in southern Malawi', *Experimental Agriculture*, Vol 38

Barahona, C. and Levy, S., 2002, 'How to generate statistics and influence policy using participatory methods in research', *Working Paper*, Reading: University of Reading, Statistical Services Centre

Barnett, V., 1991, *Sample Survey: Principles and Methods*, London: Edward Arnold

Brock, K., 1999, 'It's not only wealth that matters – it's peace of mind too: a review of participatory work on poverty and illbeing', mimeo, for the 'Global Synthesis Workshop, Consultations with the Poor', held at World Bank, Washington, D.C., Brighton: Institute of Development Studies

Chambers, R., 2003, 'Participation and numbers', *PLA Notes* 47, London: International Institute for Environment and Development

—— 1994a, 'Participatory Rural Appraisal (PRA): analysis of experience', *World Development,* Vol 22 No 9

—— 1994b, 'Participatory Rural Appraisal (PRA): challenges, potentials and paradigm', *World Development,* Vol 22 No 10

*Chinsinga, B., Dzimadzi, C., Chaweza, R., Kambewa, P., Kapondamgaga P. and Mgemezulu, O., 2001, *TIP 2000–01 Evaluation Module 4: Consultations With the Poor on Safety Nets*

*Chinsinga, B., Dzimadzi, C., Magalasi, M. and Mpekansambo, L., 2002, *2001–02 TIP Module 2: TIP Messages*

Cochran, W.G., 1977, *Sampling Techniques*, New York: Wiley

*Cromwell, E., Kambewa, P., Mwanza R. and Chirwa, R. with KWERA Development Centre, 2000, *1999–2000 Starter Pack Evaluation Module 4: The Impact of Starter Pack on Sustainable Agriculture in Malawi*

De Vaus, D.A., 1996, *Surveys in Social Research (4th edition)*, London: UCL Press

*Levy, S. and Barahona, C., 2002, *2001–02 TIP, Main Report of the Evaluation Programme*

Marsland, N., Wilson, I., Abeyasekera, S. and Kleih, U., 2001, 'A methodological framework for combining quantitative and qualitative survey methods', *Combining Quantitative and Qualitative Survey Work: Methodological Framework, Practical Issues and Case Studies*, Report for DFID NRSP (SEM) Project R7033, Chatham, UK: Natural Resources Institute

Mascarenhas, J., Shah, P., Joseph, S., Jayakaran, R., Devararam, J., Ramachandran, V., Fernandez, A., Chambers, R. and Pretty, J., 1991, 'Participatory Rural Appraisal: proceedings of the February 1991 Bangalore PRA Trainers Workshop', *RRA Notes* 13, London: International Institute for Environment and Development and Bangalore: MYRADA

National Statistical Office of Malawi, 1998, *Integrated Household Survey* (see Resources below for details)

Reason, P. and Bradbury, H. (eds), 2001, *Handbook of Action Research: Participative Inquiry and Practice*, London: Sage

Statistical Services Centre, 2001, *Some Basic Ideas of Sampling, Statistical Good Practice Guidelines*, Reading: University of Reading, Statistical Services Centre

*Van Donge, J.K., Chivwaile, M., Kapondamgaga, P., Kasapila, W., Mgemezulu, O., Sangore, N. and Thawani, E., 2001, *2000–01 TIP Module 2 (2): A Qualitative Study of Markets and Livelihood Security in Rural Malawi*

Wilson, I.M., 2002, 'Some practical sampling procedures for development research', presented at the conference Combining Qualitative and Quantitative Methods in Development Research, Swansea: Centre for Development Studies, University of Wales

—— 2001, *Sampling and Qualitative Research*, Report for DFID NRSP (SEM) Project R7033

*Wingfield Digby, P.K., 2000, *1999–2000 SP Module 5: Measuring the Size of the Rural Population in Malawi,* Chatham, UK: Natural Resources Institute

Resources

Barahona and Levy, 2002, is available at: www.reading.ac.uk/~snsbarah/sscwp

Parti Numbers Group, 2003, *Guidelines and a Code of Conduct*, will be available at www.reading.ac.uk/~snsbarah/code

Malawi Starter Pack and TIP monitoring and evaluation archive documents may be requested on CD-ROM from the DFID offices in Lilongwe, Malawi, or from:

- www.reading.ac.uk/~snsbarah/TIP1
- www.reading.ac.uk/~snsbarah/TIP2

NSO data can be found at www.nso.malawi.net

Guidelines on sampling, how to use spreadsheets for data entry, and general recommendations for data management can be found on www.ssc.reading.ac.uk

The following reports are also available from www.ssc.reading.ac.uk

- Marsland *et al.* (2001)
- Statistical Services Centre (2001)
- Wilson (2001)